

**WOODWORKERS  
TOOL WORKS  
CHICAGO**



CATALOG

**E**

SERIES

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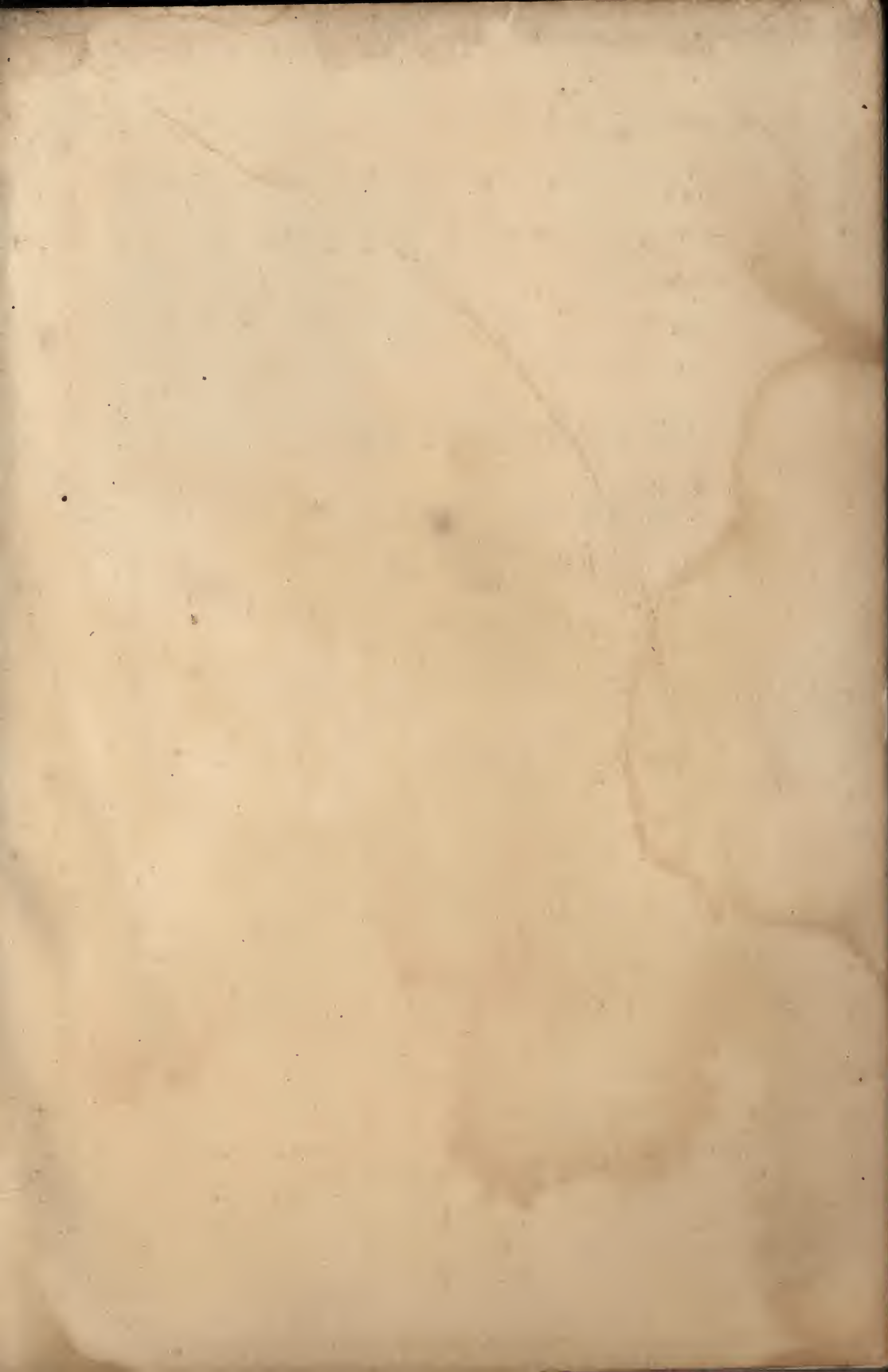
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Established 1907

Incorporated 1914

*Catalogue Series*  
*"E"*

Printed — 1929

# WOODWORKERS' TOOL WORKS

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*Manufacturers of*

*Circular Saws, Band Saws,  
Planer Knives, Moulding  
Knives, Tenoning Knives,  
Coping Knives, Matcher  
Bits, Feed Rollers, Sticker  
Heads, Bolts, Knives, etc.  
Also a complete stock of  
Wood Shop Equipment.*

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**222-224 So. Jefferson St. / CHICAGO**



MACHINERY

SAWS - TOOLS - KNIVES

WOODWORKERS TOOL WORKS

222



## FOREWORD



HIS catalogue is primarily a supply catalogue and in the following pages you will find listed practically everything in the way of the standard supply requirements of the average factory, all of which we aim to carry in stock. It would be impossible for us to show the many specialties which are always on the market or the numerous special tools of standard make. Our supply of manufacturers' catalogues, which is very complete, however, and which is at your disposal, shows these, and we would be pleased indeed to supply you with any information and prices you may desire.

The first part of this book, which is devoted to machine tools, gives only an idea of the variety of tools which we handle. We have not attempted to show the different styles or sizes and request that you ask us for separate catalogues covering machine tools, in which you may be interested, when we will be pleased to submit complete and detailed quotation and production estimates. In our store you will always find a good stock of wood working machine tools—both new and secondhand. We have our own shop with experienced machinists, where we overhaul all of the secondhand tools which we buy.

## PRICES

The list prices given in the catalogue are correct at the time of publication; they are subject to change, however, by the manufacturers as revisions are made. These lists are usually subject to discount, which discounts change so frequently that the publication of a discount sheet is impractical. Requests for discount or net prices will be promptly replied to. All quotations are for immediate acceptance, as all prices are subject to change without notice. Our terms are cash unless otherwise arranged, F. O. B. our store or point of shipment.



## ORDERING

By complying with the following instructions in ordering, your order can be correctly entered and filled and delays due to corresponding, wiring or phoning will be avoided.

Give name of party to whom the material is to be charged.

Give name of party to whom the material is to be shipped.

Specify how you want shipment—by freight, express or insured parcel post, and by what road.

Always order by name used in our catalogue, giving page, figure number, quantity and size.

## TERMS OF WARRANTY

Every saw bearing our brand is guaranteed free from flaws and seams. If found defective in either of these points the saw may be returned, and if on examination saw proves to be at fault it will be repaired without charge, or a new one given in exchange if received within 30 days from date of purchase. The use of a punch in gumming saws is certain to distort the blade and is liable to cause cracks; filing the gullets of the teeth to sharpen corners frequently produces the same result, especially in frosty weather. Our warranty does not cover saws broken from either of these causes.

## TERMS

Orders from parties unknown to us must be accompanied with cash or good commercial reference.

Remittance should be by Draft on Chicago or New York, P. O. Money Order or Registered Letter. Bills unpaid by 20th proximo, subject to sight draft.

Send full shipping directions to prevent delay and expense.

All prices are f. o. b. Chicago.

Boards and cases charged at cost.

## MISCELLANEOUS WORK

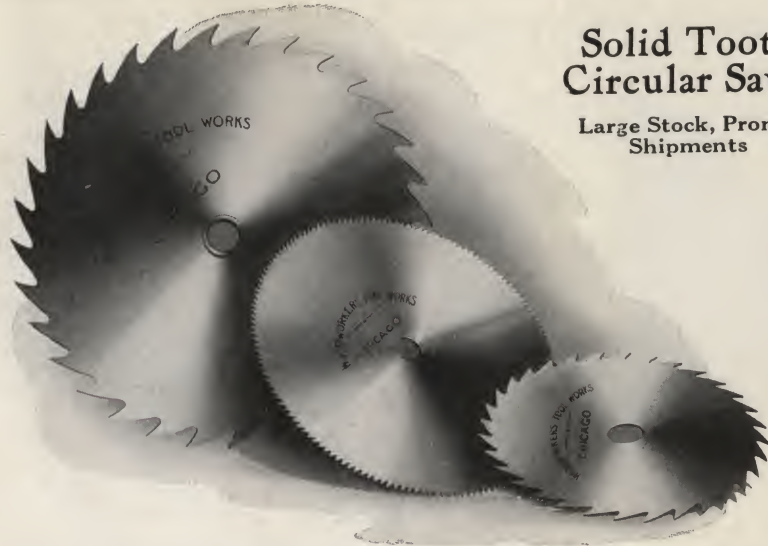
Many of our friends know us only as Saw Makers. We make to order all kinds of Springs, Tools, and anything that can be made from sheet steel. We are also prepared to do forging of all kinds. Tempering and annealing work solicited. Our facilities are first class. We will be glad to furnish estimates.

All agreements are contingent upon strikes, accidents, fires and other causes unavoidable or beyond our control.



## Solid Tooth Circular Saws

Large Stock, Prompt  
Shipments



Diameter Inches	Thickness Gauge	Size Hole Inches	PRICE EACH	Extra for Each Gauge Heavier	Beveling New Saws per Gauge
6	18	$\frac{3}{4}$	\$3.30	\$0.07	\$0.25
8	18	$\frac{7}{8}$	4.40	.10	.35
10	16	1	5.60	.20	.45
12	15	1	7.00	.30	.55
14	14	$1\frac{1}{8}$	8.50	.40	.65
16	14	$1\frac{1}{8}$	10.50	.50	.75
18	13	$1\frac{1}{4}$	12.50	.60	.90
20	13	$1\frac{5}{16}$	15.00	.75	1.05
22	12	$1\frac{5}{16}$	17.50	.90	1.20
24	11	$1\frac{3}{8}$	20.50	1.05	1.35
26	11	$1\frac{3}{8}$	24.00	1.25	1.55
28	10	$1\frac{1}{2}$	28.00	1.50	1.75
30	10	$1\frac{1}{2}$	32.00	1.75	1.95
32	10	$1\frac{5}{8}$	36.50	2.00	2.15
34	9	$1\frac{5}{8}$	41.00	2.25	2.35
36	9	$1\frac{5}{8}$	47.00	2.60	2.55
38	9	$1\frac{5}{8}$	54.00	3.00	2.75
40	9	2	62.00	3.40	2.95
42	8	2	71.00	3.80	3.25

All saws less than 6 inches in diameter take list of 6 inch saw.

All saws filed and set ready for use.

All saws of odd diameters not listed take list of next larger size.

No extra charge for saws one gauge thicker than list.

No extra charge for saws one to three gauges thinner than list; when more than three gauges thinner than list, add 5 per cent for each gauge.

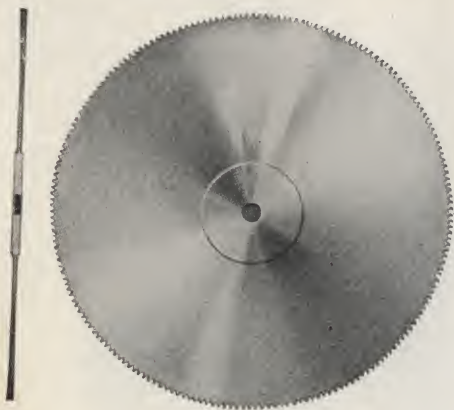
Saws 42 inches or less in diameter beveled one gauge without extra charge.

Saws hollow or concave ground, add for each gauge hollow or concave ground, double the list for beveling.

Saws for cutting Bone, Horn, or Ivory, add 50 per cent to the above list. When these saws are hollow or bevel ground, the 50 per cent advance is to apply only on the list of a straight gauge saw, and not on the extras for hollow or bevel grinding.

Collars for thin saws, Groove Saw List.

## Circular Mitre Saws for Cross Cutting



These Saws are ground to run with set, and are especially adapted to smooth cutting, such as cabinet and cigar box work.

Novelty Saws are furnished for either cutting off or splitting. When ordering specify which is desired.

Novelty Saws will not cut as fast as saws with ordinary splitting or cutting-off teeth, and their use is not advised when crowding the work is considered of more importance than smoothness and finish.

Mitre Saws and Novelty Saws are both ground to run without set, and are especially adapted to smooth cutting, such as cabinet and cigar box work.

### List Prices

Size Inches	Gauge at Hole	Gauge at Edge of Collar	Gauge at Teeth	Extra for Each Gauge Heavier	Extra for Each Addi- tional Gauge Beveling	Price, Each
6	17	20	17	\$0.07	\$0.50	\$ 5.40
8	16	19	16	.10	.70	6.80
10	15	18	15	.20	.90	8.60
12	14	17	14	.30	1.10	10.60
14	13	16	13	.40	1.30	12.60
16	13	16	13	.50	1.50	14.80
18	12	15	12	.60	1.80	17.40
20	12	15	12	.75	2.10	20.60

## The Planer Saw



This saw will work successfully in soft or hard wood, whether ripping, cutting off, or mitering and will stand fast hand feed without rubbing or overheating.

The Planer Saw has been developed to replace the Novelty Saw and owing to our method of clearance grinding, it can be used on a far greater variety of work, at the same time giving the smooth cut formerly obtainable only in Novelty Saws.

It is made only in standard gauges and with four cutting teeth and a raker to each section and in the diameters listed below.

Give it a trial.

6 inch	\$5.55	16 inch	\$15.80
8 "	7.00	18 "	18.60
10 "	9.00	20 "	22.10
12 "	11.20	22 "	26.00
14 "	13.40	24 "	30.10

## Re-Sawing or Siding Saws

Diameter, Inches	Gauge	PRICE, EACH	Diameter, Inches	Gauge	PRICE, EACH
16	13 x 17	\$12.75	28	9 x 13	\$33.25
16	12 x 16	13.25	28	9 x 14	35.00
16	11 x 15	13.75	28	8 x 13	36.50
18	12 x 16	15.20	30	9 x 13	37.85
18	11 x 15	15.80	30	9 x 14	39.80
18	12 x 17	16.10	30	8 x 13	41.55
20	12 x 16	18.15	32	9 x 13	42.95
20	11 x 15	18.90	32	9 x 14	45.10
20	12 x 17	19.20	32	8 x 13	47.10
22	11 x 15	21.10	34	9 x 13	48.05
22	10 x 14	22.00	34	8 x 13	50.40
22	11 x 16	22.30	34	8 x 14	52.75
24	10 x 14	24.55	36	8 x 13	57.20
24	9 x 13	25.60	36	8 x 14	59.75
24	10 x 15	25.90	36	7 x 14	64.90
26	10 x 14	28.65	38	8 x 12	62.25
26	9 x 13	29.90	38	8 x 13	65.00
26	10 x 15	30.20	38	7 x 13	70.75

## THE STANDARD NUMBER OF TEETH IN CIRCULAR SAWS

Diameter, Inches	Splitting	Cut-Off	Diameter, Inches	Splitting	Cut-Off
4	38 to 40	100 to 120	24	34 to 36	72 to 80
5	38 to 40	100 to 120	26	32 to 34	72 to 80
6	38 to 40	100 to 120	28	32 to 34	72 to 80
7	38 to 40	100 to 120	30	32 to 34	80 to 90
8	38 to 40	100 to 120	32	32 to 34	80 to 90
9	36 to 38	90 to 110	34	32 to 34	80 to 90
10	36 to 38	90 to 110	36	34 to 38	80 to 90
12	36 to 38	90 to 100	38	34 to 38	80 to 100
14	36 to 38	90 to 100	40	36 to 40	80 to 100
16	36 to 38	80 to 90	42	36 to 40	80 to 100
18	34 to 36	80 to 90	44	36 to 40	80 to 100
20	34 to 36	80 to 90	46	36 to 40	80 to 100
22	34 to 36	72 to 80			

## TABLE OF SPEED OF CIRCULAR SAWS

Size of Saw Inches	Revolutions Per Minute	Size of Saw Inches	Revolutions Per Minute
8	4,500	42	870
10	3,600	44	840
12	3,000	46	800
14	2,585	48	750
16	2,222	50	725
18	2,000	52	700
20	1,800	54	675
22	1,636	56	650
24	1,500	58	625
26	1,384	60	600
28	1,285	62	575
30	1,200	64	550
32	1,121	66	545
34	1,050	68	529
36	1,000	70	514
38	950	72	500
40	900		

The above table is figured on a periphery speed of 9,000 feet per minute, but saws for portable mills are usually run at a speed of about 450 revolutions per minute, and saws for team feed mills from 600 to 900 revolutions per minute.



## Repairing Circular Saws

Diameter	Hammering	Gumming and Hammering	Retooling and Hammering	Grinding		Setting and Sharpening	
				First Gauge	Each Addi- tional Gauge	Cut-Off Saws	Rip Saws
6 inch	\$0.90	\$1.35	\$1.60	\$1.35	\$0.75	\$0.96	\$0.60
8 "	.90	1.35	1.60	1.35	.75	.96	.60
10 "	1.05	1.35	1.80	1.35	.95	.96	.72
12 "	1.05	1.60	2.10	1.35	1.10	1.20	.72
14 "	1.20	1.60	2.20	1.60	1.15	1.20	.96
16 "	1.20	1.80	2.30	1.80	1.25	1.60	1.20
18 "	1.45	2.10	2.55	1.95	1.30	1.80	1.40
20 "	1.65	2.50	2.95	2.20	1.45	1.95	1.55
22 "	1.90	2.85	3.30	2.40	1.60	2.15	1.70
24 "	2.10	3.25	3.70	2.70	1.75	2.85	1.95
26 "	2.40	3.70	4.20	3.00	1.90	2.50	2.10
28 "	2.70	4.15	4.75	3.40	2.05	2.65	2.25
30 "	3.00	4.60	5.35	3.75	2.20	2.85	2.40
32 "	3.30	5.05	6.00	4.15	2.35	3.00	2.55
34 "	3.70	5.55	6.90	4.50	2.55	3.20	2.80
36 "	4.30	6.15	7.80	4.90	2.80	3.45	3.10
38 "	4.80	7.00	9.00	5.25	3.00	3.70	3.30
40 "	5.55	8.05	10.20	5.65	3.30	4.00	3.50

Saws smaller than 6 inches take 6 inch price.

Saws of odd diameter, take the price of next larger size.

When saw is ground, add price of hammering to price of grinding. Gumming and retooling prices cover sizes of saws after they have been repaired. All breakages at risk of owner.

### GENERAL HINTS RESPECTING THE MANNER OF FITTING OR DRESSING SAWS

A saw tooth should have the proper spread and pitch for the wood which it is to cut. Soft wood requires more spread or "set," and less pitch; hard wood the reverse. A saw swaged full on both corners with square dress will do the fastest cutting, but requires the most power. In swaging use oil on point of tooth.

By careless dressing we have seen saw teeth higher back of the cutting point than at the point itself, thereby causing the saw to bind and heat on the rim.

The greater the feed the lower the back of the tooth should be, giving easier clearance and greater dust room.

In spreading the points of teeth it is almost impossible to make them all of equal width, but they may be reduced to a uniform width by the use of our Side File.

By this treatment the corners are stronger and less liable to break off in hard cuts.

### THE EMERY WHEEL

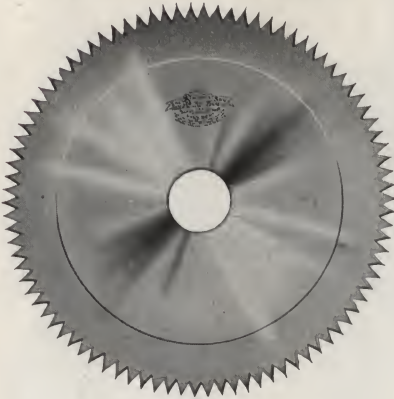
Emery wheels, as employed in gumming and sharpening saws, accomplish a great saving of time and labor, but when improperly used, as they often are, cause irreparable injury to saws. When the points of teeth become heated or "blued" by the use of an emery wheel, the steel loses its toughness and tenacity in some degree, and is liable to split and crumble off in the process of spreading the points afterwards.

### BAD FILING

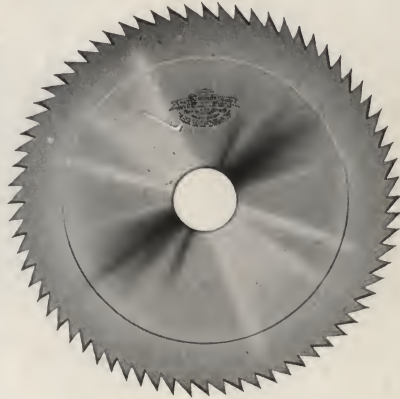
No saws are so liable to crack in using as circular cut-off saws, for the reason that they are generally filed so as to leave a square corner at the base of the teeth, and the bevel of the face being carried down into this corner still further weakens it. Saws broken in this condition cannot be considered subject to our warranty.

It is surprising that so many still persist in this manner of filing when a few strokes with a round file at the base of the tooth after beveling the front will keep it in good shape by preventing the formation of the square corners from which the crack starts. The saw will clear better if the bevel is carried down only half the depth of the teeth.

## Thin Rim Special Ground Circular Saws



Cut-Off Tooth

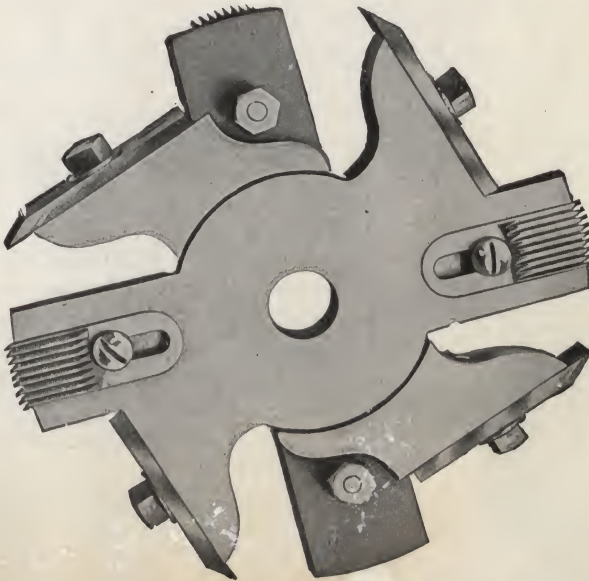


Rip Tooth

These saws, as may be seen in the sectional view, are ground very thin for a short distance back from the teeth, and the body of the saw is much thicker, to give strength and stiffness. They are made with either cut-off or rip teeth, for very fine, smooth, light cutting. These saws take the Novelty Saw Price List, page 4.

## Champion Expansion Dado Head

9 In. Diameter

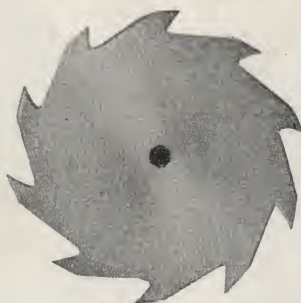


Will adjust from 1 in. to 2 in. wide. Corrugated spurs insure smooth cutting with or across the grain.

Price, \$30.00



## Grooving Saws



Diam. Inch	No. of Teeth	Thickness								
		$\frac{1}{8}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "
4	5	\$ 3.60	\$ 3.80	\$ 6.20	\$ 7.00	\$ 8.00	\$ 8.80	\$ 9.60	\$14.00	\$14.60
5	6	4.20	4.40	7.20	8.00	9.20	10.20	11.20	16.80	17.80
6	8	5.20	5.40	8.20	9.20	10.40	11.60	12.80	19.60	21.00
7	8	6.00	6.40	9.20	10.40	11.60	13.00	14.40	22.80	23.60
8	10	6.80	7.40	10.20	11.60	13.20	14.80	16.40	26.00	27.00
9	10	7.40	8.40	11.40	13.00	14.80	16.60	18.40	29.20	31.00
10	10	8.20	9.40	12.60	14.40	16.40	18.40	20.40	33.40	35.00
11	11	10.60	11.80	14.00	16.80	18.80	21.00	22.40	36.60	39.00
12	12	11.60	12.80	15.40	19.20	21.40	23.60	24.80	39.80	43.00
14	14	13.80	15.40	17.80	22.20	26.00	28.20	29.80	45.00	49.80
16	16	15.40	18.40	21.20	26.00	30.60	33.40	35.60	53.00	59.00

Grooving saws with bevel face and saws with teeth shaped and backed off, take special price.

Special grooving saws made to order, special prices.

We also manufacture grooving saws for panel raising or grooving special shapes, and a special bevel face shear tooth grooving saw for grooving corner posts of crates, etc.



## The Champion Groove Cutter

A perfect tool for all kinds of grooving. This cutter will cut uniform—always maintaining one size groove. Does not require setting like common groove saws. No filing necessary. To sharpen cutter, grind front of tooth only on emery wheel.

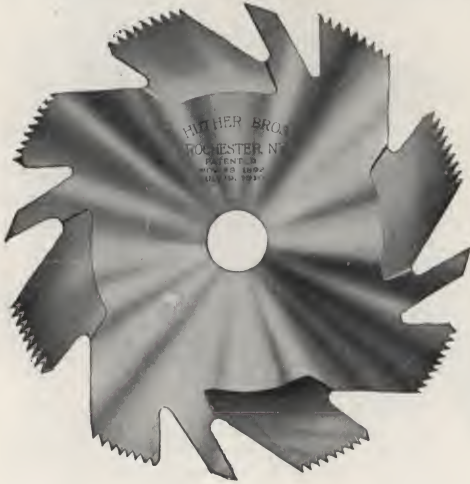
This cutter will outlast a groove saw as same is tempered very hard so a file cannot touch it. It will not wear in diameter.

Price, using above groove saw list, adding 50%. These saws not made over 10 inches in diameter.



## Patent Tooth, Solid Plate Grooving Saws

For Smooth Grooving, Either With or Across the Grain



Diam., Inches	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$
5	\$ 4.15	\$ 5.00	\$ 7.10	\$ 9.15
6	4.90	5.85	8.35	10.85
7	5.65	6.65	9.60	12.50
8	6.40	7.90	11.25	14.50
9	7.15	9.15	12.90	16.65
10	8.35	10.40	14.60	19.15
11	9.60	12.50	16.25	21.65
12	11.25	13.75	20.00	24.15
14	13.35	15.00	25.00	26.65
16	15.70	16.65	30.00	33.35

Diam., Inches	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	
5	\$11.50	\$13.15	\$14.85	.....
6	13.15	14.85	16.50	.....
7	14.85	16.50	18.65	.....
8	16.50	18.15	20.85	.....
9	18.35	20.00	23.00	.....
10	20.85	22.90	26.00	.....
11	23.35	25.40	29.15	.....
12	26.85	29.15	33.35	.....
14	31.35	33.85	39.35	.....
16	36.15	39.15	45.65	.....

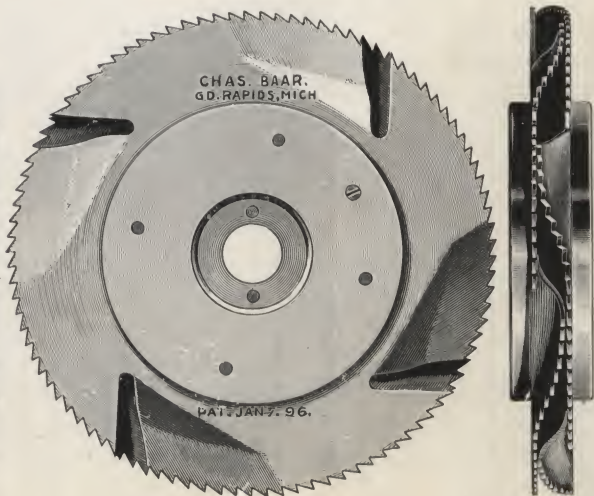
## Barr Dado Heads

This Dado Head is essential in any wood working factor that uses a saw and will cut various widths depending upon the size of the head. This is the only head that does not require taking apart for filing and there is nothing about it that can fly off or come apart. It will not spread or spring while cutting and is easily adjustable to any width within its range by means of the small wrench which slips over the spindle.

We furnish these heads as shown and also with set screw collar, when desired for use on Dado Machine or Stickers. When furnished for use on Dado Machines, we make them in pairs so they can be butted together, thus doubling the width of the groove.

It is by far the simplest and most economical head on the market—two important things to consider when buying.

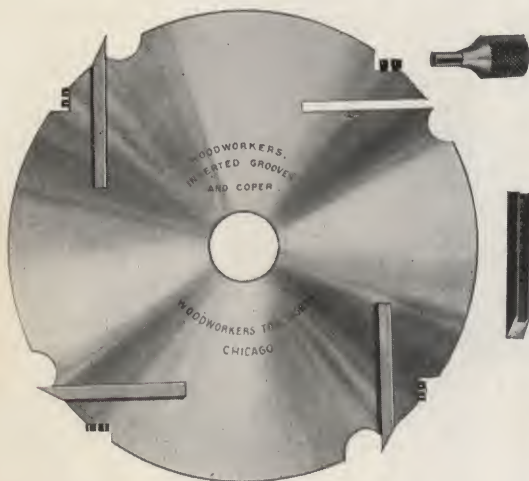
We furnish these saws regularly to cut with or across the grain.



### Price List

Adjusts	$\frac{3}{16}$ to $\frac{3}{8}$	$\frac{1}{4}$ to $\frac{1}{2}$	$\frac{3}{8}$ to $\frac{9}{16}$	$\frac{1}{2}$ to $\frac{13}{16}$	$\frac{5}{8}$ to 1	$\frac{3}{4}$ to $1\frac{1}{4}$	$\frac{7}{8}$ to $1\frac{1}{2}$	1 to $1\frac{3}{4}$	$1\frac{1}{4}$ to $2\frac{1}{4}$
Diameter									
8 in.	\$27.60	\$27.60	\$27.60	\$28.20	\$28.80	\$29.40	\$30.00	\$30.60	\$31.80
9 in.	29.40	29.40	29.40	30.00	30.60	31.20	31.80	32.40	33.60
10 in.	31.20	31.20	31.20	31.80	32.40	33.00	33.60	34.20	35.40
12 in.	33.00	33.00	33.00	36.60	37.20	37.80	38.40	39.00	40.20

# The Woodworkers Inserted Groover and Coper



## TO INCREASE PRODUCTION

A high-speed trouble-proof cutting unit, guaranteed to cut smoother and last longer.

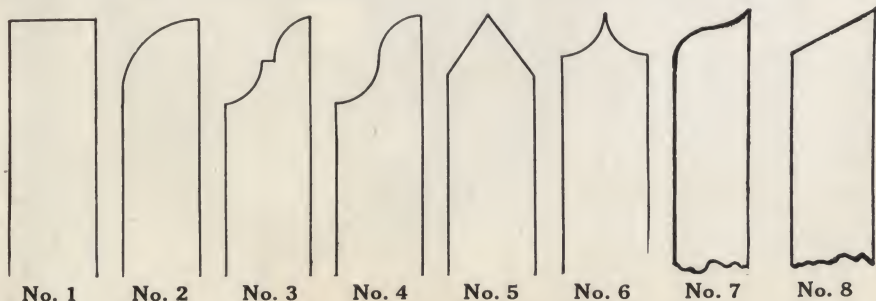
You will find the WOODWORKERS' INSERTED GROOVER AND COPER reliable, economical and safe to operate.

Saves material; saves power; no setting nor swaging; cuts always exact and uniform; saw body lasts a lifetime.

Saws are made from 6 to 20 inches in diameter, thickness 3/16 to 1-in., depending upon width of groove in knife; 2 to 16 teeth.

Can be used on saw tables, shapers, single and double-end tenoners, and other machines.

The knives are made of genuine high-speed steel, assuring long runs with one sharpening. Held rigidly in place with unbreakable set screws, and grooved along the back to prevent side play. Adjustments are quickly and easily made.



1. Standard slotting and grooving tooth.
2. 1/4-round cope cutter—cope cutters ground to any pattern desired.
3. Cope and bead cope cutters.
4. O-G cope cutter.
- 5-6. Special shapes of all kinds.
7. Sash coper.
8. Check rail slotter.



## PRICE LIST—SUBJECT TO DISCOUNT

Dia.	Width Cutting Edge	No. Teeth	List Price	Dia.	Width Cutting Edge	No. Teeth	List Price
5"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	2	\$29.00	16"	$\frac{9}{16}$ " to 1"	10	\$121.00
5"	$\frac{9}{16}$ " to 1"	2	38.00	16"	$\frac{9}{16}$ " to 1"	12	138.75
5"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	4	35.00	18"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	10	97.75
5"	$\frac{9}{16}$ " to 1"	4	43.50	18"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	12	112.00
6"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	2	29.00	18"	$\frac{9}{16}$ " to 1"	10	128.00
6"	$\frac{9}{16}$ " to 1"	2	38.00	18"	$\frac{9}{16}$ " to 1"	12	145.50
6"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	4	36.25	18"	$\frac{9}{16}$ " to 1"	14	164.50
6"	$\frac{9}{16}$ " to 1"	4	44.75	20"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	12	117.00
7"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	2	34.00	20"	$\frac{9}{16}$ " to 1"	12	152.50
7"	$\frac{9}{16}$ " to 1"	2	40.00	20"	$\frac{9}{16}$ " to 1"	14	172.50
7"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	4	37.25	20"	$\frac{9}{16}$ " to 1"	16	190.50
7"	$\frac{9}{16}$ " to 1"	4	46.50	22"	$\frac{9}{16}$ " to 1"	14	180.50
8"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	2	32.00	22"	$\frac{9}{16}$ " to 1"	16	198.75
8"	$\frac{9}{16}$ " to 1"	2	42.00	22"	$\frac{9}{16}$ " to 1"	18	216.75
8"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	4	38.25	24"	$\frac{9}{16}$ " to 1"	16	205.50
8"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	6	52.50	24"	$\frac{9}{16}$ " to 1"	18	225.50
8"	$\frac{9}{16}$ " to 1"	4	48.00	24"	$\frac{9}{16}$ " to 1"	20	240.50
8"	$\frac{9}{16}$ " to 1"	6	65.75				
9"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	2	35.00				
9"	$\frac{9}{16}$ " to 1"	2	45.00				
9"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	4	39.25				
9"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	6	53.50				
9"	$\frac{9}{16}$ " to 1"	4	50.00				
9"	$\frac{9}{16}$ " to 1"	6	67.50				
10"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	2	36.00				
10"	$\frac{9}{16}$ " to 1"	2	47.00				
10"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	4	40.50				
10"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	6	55.00				
10"	$\frac{9}{16}$ " to 1"	4	52.00				
10"	$\frac{9}{16}$ " to 1"	6	69.25				
12"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	2	49.00				
12"	$\frac{9}{16}$ " to 1"	2	52.00				
12"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	6	57.50				
12"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	8	71.75				
12"	$\frac{9}{16}$ " to 1"	6	74.75				
12"	$\frac{9}{16}$ " to 1"	8	92.50				
14"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	8	76.50				
14"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	10	91.00				
14"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	12	104.75				
14"	$\frac{9}{16}$ " to 1"	8	97.50				
14"	$\frac{9}{16}$ " to 1"	10	115.00				
14"	$\frac{9}{16}$ " to 1"	12	133.00				
16"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	8	79.75				
16"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	10	92.75				
16"	$\frac{1}{4}$ " to $\frac{1}{2}$ "	12	107.00				
16"	$\frac{9}{16}$ " to 1"	8	103.50				

## EXTRA REGULAR TEETH

	Each	Each
$\frac{1}{4}$ "	\$1.60	$\frac{5}{8}$ " \$2.00
$\frac{5}{16}$ "	1.65	$\frac{3}{4}$ " 2.10
$\frac{3}{8}$ "	1.70	$\frac{7}{8}$ " 2.30
$\frac{7}{16}$ "	1.75	1" 2.45
$\frac{1}{2}$ "	1.80	

Knives made special to wood sample or drawing, double the above list price.

Wrench, each ..... \$1.85

Hardened Set Screws, each.. .35

Spurs, Corrugated to make combination rip and cut-off each ..... 9.50

Extra Spurs, each..... 2.35

Width of cutting edge referred to above represents variations which can be had with teeth of these cutting edges. The plates are made in two thicknesses— $\frac{3}{16}$  and  $\frac{3}{8}$  of an inch. The  $\frac{3}{16}$  plate will accommodate teeth suitable for cutting grooves up to  $\frac{1}{2}$ " wide. The  $\frac{3}{8}$ " plate will accommodate teeth suitable for cutting grooves from  $\frac{1}{2}$ " to 1" wide.



## Mattison Dado Head



Style B

Price, \$30.00

Spurs and Groovers.....	\$ 3.00
Knife Holders.....	3.00
Cylinder or hub.....	15.00

The Style B, shown above, is recommended where a Head is to be provided for the general use of the men about a shop.

One of the first requisites of a tool that is to be used by "any one and every one" is that it be easy to handle and take care of. It must also be substantially made and free from small and delicate parts so that it will not easily get out of order.

While none of the Dado-Heads we make are complicated or hard to take care of, still the picture will readily tell you that for the above purpose our Style B Head is ideal; not only because it is so simple in construction and easy to take care of, but because it combines with these qualities the other essential advantages of our Everlasting Dado-Heads.

It is made in the following standard sizes:

No. 12.	Cutting from $\frac{3}{8}$ in. to $\frac{5}{8}$ in.	No. 16	Cutting from $1\frac{1}{8}$ in. to $1\frac{1}{2}$ in.
No. 13.	Cutting from $\frac{1}{2}$ in. to $\frac{7}{8}$ in.	No. 17	Cutting from $\frac{7}{8}$ in. to $1\frac{5}{8}$ in.
No. 14.	Cutting from $\frac{5}{8}$ in. to $1\frac{1}{8}$ in.	No. 18	Cutting from 1 in. to $1\frac{7}{8}$ in.
No. 15.	Cutting from $\frac{3}{4}$ in. to $1\frac{3}{8}$ in.		

Diameter of cutting circle  $8\frac{1}{2}$  in. as usually furnished, but can be made from 8 in. to 9 in. In ordering, give exact size of arbor to avoid delays or mistakes.

# "Huthur" Patent Groover or Dado Head

Prices Subject to Discount

Jointed and Filed, Ready for Use



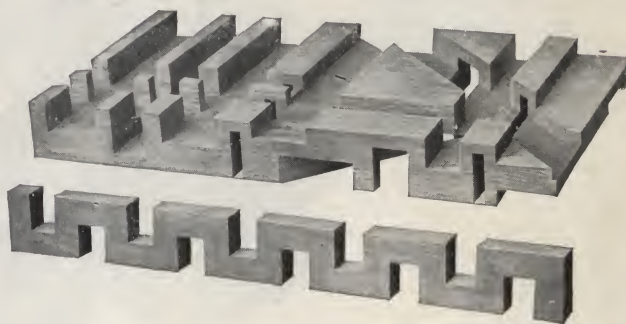
OUTSIDE CUTTER



INSIDE CUTTER



OUTSIDE CUTTER



Will cut a perfect groove with or across the grain.

Can be used on any Circular Saw Mandrel.

For cutting any width groove, from  $\frac{1}{8}$  in. to 2 inches or over. This groover consists of two outside saws, each of which is a groover in itself, and as many inside cutters as required. The inside cutters are made  $\frac{1}{16}$ ,  $\frac{1}{8}$ , and  $\frac{1}{4}$  inch thick, so that any width groove measurable in sixteenths may be cut. The outside cutters are made  $\frac{1}{8}$  inch thick. It will cut a perfect groove, either with or across the grain, and will not leave a rough edge, as is the case with ordinary groovers.

This tool is recommended to any person in need of a perfect Groover, Dado or Gaining Head.

The outside cutters, can be used singly, together, or in connection with as many or as few inside cutters as required to cut the necessary width groove.

We will guarantee to sell you the best Dado on the market, and will send on approval to any responsible party, and if not satisfactory in every respect it can be returned at our expense.

THE GROOVERS ARE ARRANGED IN SETS, AS FOLLOWS:

No. 1 Set, cutting groove,	$\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ .
No. 2 Set, " "	$\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ .
No. 3 Set, " "	$\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{7}{8}$ , $\frac{9}{16}$ , $\frac{5}{8}$ , $\frac{11}{16}$ , $\frac{3}{4}$ .
No. 4 Set, " "	$\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{7}{8}$ , $\frac{9}{16}$ , $\frac{5}{8}$ , $\frac{11}{16}$ , $\frac{3}{4}$ , $\frac{13}{16}$ , $\frac{7}{8}$ , $\frac{15}{16}$ , 1.
No. 5 Set, " "	$\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{7}{8}$ , $\frac{9}{16}$ , $\frac{5}{8}$ , $\frac{11}{16}$ , $\frac{3}{4}$ , $\frac{13}{16}$ , $\frac{7}{8}$ , $\frac{15}{16}$ , 1, $1\frac{1}{16}$ , $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{1}{2}$ , $1\frac{3}{4}$ .
No 6 Set, " "	$\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{7}{8}$ , $\frac{9}{16}$ , $\frac{5}{8}$ , $\frac{11}{16}$ , $\frac{3}{4}$ , $\frac{13}{16}$ , $\frac{7}{8}$ , $\frac{15}{16}$ , 1, $1\frac{1}{16}$ , $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{1}{2}$ , $1\frac{3}{4}$ , $2$ .

	6 In. Diam.	7 In. Diam.	8 In. Diam.	9 In. Diam.	10 In. Diam.	11 In. Diam.	12 In. Diam.	14 In. Diam.	16 In. Diam.	18 In. Diam.	20 In. Diam.
No. 1 Set ...	\$11.50	\$13.15	\$14.85	\$16.50	\$19.00	\$21.65	\$25.15	\$29.65	\$34.50	\$37.15	\$43.85
No. 2 Set ...	13.85	15.65	17.50	19.35	22.00	24.85	28.65	34.00	39.85	43.15	50.35
No. 3 Set ...	16.60	18.65	20.85	23.00	26.00	29.15	33.35	39.35	45.65	50.00	58.35
No. 4 Set ...	18.90	21.15	23.50	25.85	29.00	32.35	36.85	43.65	51.00	56.00	65.85
No. 5 Set ...	23.60	26.15	28.85	31.50	35.00	38.65	43.85	52.35	61.65	68.00	80.85
No. 6 Set ...	28.25	31.15	34.15	37.15	41.00	45.00	50.85	61.00	72.35	80.00	95.85
No. 7 Set ...	37.60	41.15	44.85	48.50	53.00	57.65	64.85	78.35	93.65	104.00	125.85
No. 8 Set ...	46.90	51.15	55.50	59.85	65.00	70.35	78.85	95.65	115.00	126.65	155.85

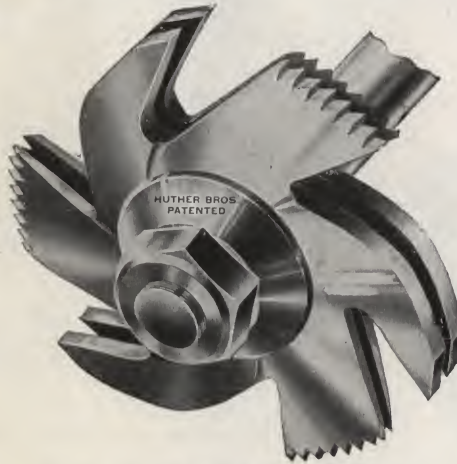


## Inside Cutters for Dado Head

### Price List, Inside Cutters

Diameter	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	Diameter	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$
5	\$ .90	\$1.50	\$2.00	11	\$1.85	\$2.50	\$3.15
6	1.10	1.65	2.35	12	2.00	2.65	3.50
7	1.20	1.85	2.50	14	2.35	3.00	4.35
8	1.35	2.00	2.65	16	2.65	3.15	5.35
9	1.50	2.15	2.85	18	3.00	3.85	6.00
10	1.65	2.35	3.00	20	3.50	4.50	7.50

## Patent Matcher Cutters



### For Cutting Tongue and Groove

Our Patent Matcher Cutters for matching box boards or short pieces is an excellent tool where it is desired to do the work on an ordinary saw arbor or on a machine designed for matching.

The Tongue Cutters are made in pairs, one right hand and one left hand. A Spacing Collar is used between these cutters to form tongue, and when necessary to joint the top of the tongue we can furnish a Jointer Cutter which acts as jointer and spacer combined.

For Groove Cutters we furnish our Patent Tooth Cutters. These cutters will make a perfectly smooth cut and work equally well in knotty or cross-grained stock.

In ordering Matcher Cutters state the width of stock to be cut, width of the groove and whether cutters are for single or double matching; also whether Jointing Cutters or Spacing Collars are to be furnished. Diameter of Cutters and Size of hole.

### Patent Matcher Cutter, per Pair

Size	Price
6"x $\frac{1}{8}$ "	\$ 9.80
6"x $\frac{3}{16}$ "	11.65
6"x $\frac{1}{4}$ "	16.65
6"x $\frac{5}{16}$ "	21.65
6"x $\frac{3}{8}$ "	26.30
6"x $\frac{1}{2}$ "	33.00

Size	Price
7"x $\frac{1}{8}$ "	\$11.30
7"x $\frac{3}{16}$ "	13.30
7"x $\frac{1}{4}$ "	19.15
7"x $\frac{5}{16}$ "	25.00
7"x $\frac{3}{8}$ "	29.65
7"x $\frac{1}{2}$ "	37.30

### Spacing Collars

Size	Price
3"x $\frac{1}{8}$ "	\$ .85
3"x $\frac{3}{16}$ or $\frac{1}{4}$ "	1.00
3"x $\frac{3}{8}$ "	1.25
3"x $\frac{1}{2}$ "	1.50



# Lamson Cutter Head

(Dado and Groove Head)

**ADJUSTABLE  
HEADS**



Cuts Any Width Between Given Sizes



**SOLID HEADS  
For Single Cuts**



Cut- Both Ways of Grain

**Solid or Non-Adjustable**

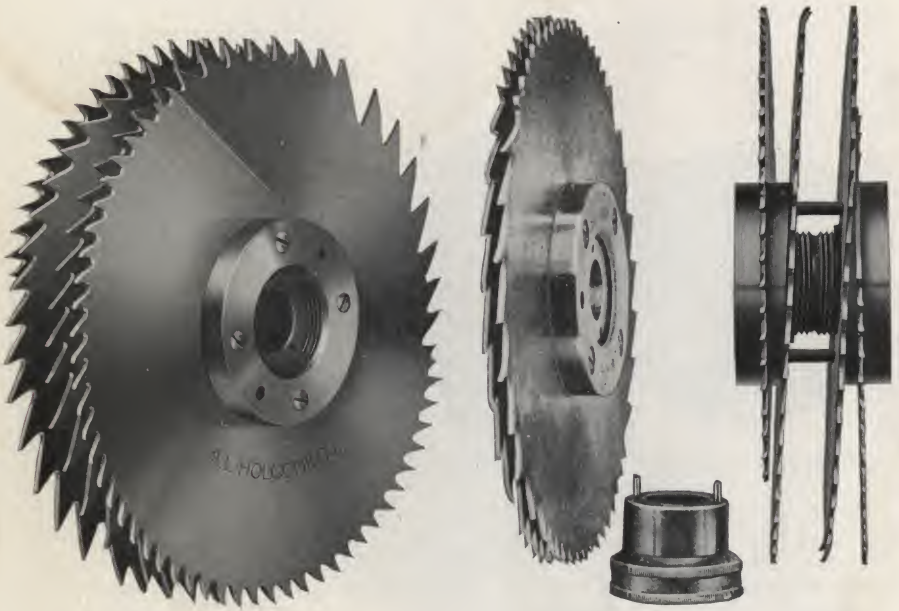
Diameter Inches	Thickness $\frac{3}{16}$ in.	Thickness $\frac{1}{4}$ & $\frac{5}{16}$ in.	Thickness $\frac{3}{8}$ in.	Thickness $\frac{1}{2}$ in.	Thickness $\frac{5}{8}$ in.	Thickness $\frac{3}{4}$ in.	Thickness $1\frac{1}{16}$ in.	Thickness $\frac{7}{8}$ in.
7	\$3.50	\$4.00	\$4.50	\$5.00	\$5.50	\$6.00	\$6.50	\$7.00
8	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
9	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00
10	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50

In ordering, state whether head is to cut with, or across, or both ways of the grain.  
Be sure to give size of arbor.

**Adjustable**

Diameter, Inches	Adjust $\frac{1}{2}$ to $\frac{3}{4}$ in.	Adjust $\frac{5}{8}$ to 1 in.	Adjust $\frac{3}{4}$ to $1\frac{1}{4}$ in.	Adjust $\frac{7}{8}$ to $1\frac{1}{2}$ in.	Adjust 1 to $1\frac{3}{4}$ in.
7 .....	\$12.00	\$13.00	\$14.00	\$15.00	\$17.00
8 .....	13.00	14.00	15.00	16.00	18.00
9 .....	14.00	15.00	16.00	17.00	19.00
10 .....	15.00	16.00	17.00	18.00	20.00

## HOLCOMB Adjustable Dado Heads



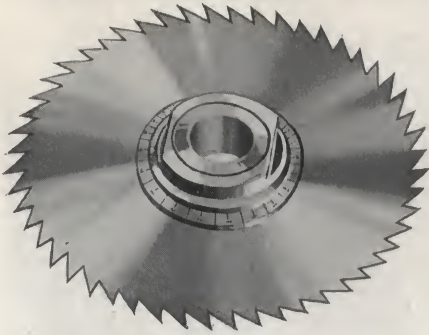
### The No. 1 Adjustable Dado Head.

Constructed of four saws, mounted on suitable collars. This head is very easily fitted and makes a perfect cut with or across the grain; is easily adjusted to make any cut within its range by means of a little wrench which slips over the spindle.

These Heads have been in successful use for 25 years, and today practically every furniture manufacturer in the City of Grand Rapids, has from one to twenty-five of them.

Diam. Inches	Adjusts $\frac{3}{8}$ to $\frac{3}{4}$	Adjusts $\frac{1}{2}$ to 1	Adjusts $\frac{5}{8}$ to $1\frac{1}{4}$	Adjusts $\frac{3}{4}$ to $1\frac{1}{2}$	Adjusts $\frac{7}{8}$ to $1\frac{3}{4}$	Adjusts 1 to 2	Adjusts $1\frac{1}{4}$ to $2\frac{1}{2}$	Adjusts $1\frac{1}{2}$ to 3
8".....	\$35.60	\$35.20	\$35.20	\$35.20	\$36.60	\$36.60	\$38.00	
10".....	—	39.40	38.00	38.00	38.00	39.40	39.40	43.00
12".....	—	—	45.50	42.60	42.20	42.20	45.00	45.00
14".....	—	—	—	50.50	48.00	48.00	48.00	50.50





## Adjustable Groove Wobbler

This wobble saw is made for use on shaper and other woodworking machines where a fine adjustment is necessary. It is plainly marked for different size grooves and no rule is necessary when changing from one size to another. Stock size 7-inch diameter adjusts from  $\frac{1}{8}$ -inch to 1-inch, cutting up to  $1\frac{1}{2}$  inches in depth. Any size hole.

Price, each .....\$34.00

## Style B Rabbeting Saws

These rabbeting saws are used on shapers and possess many advantages over the old methods of cutting rabbets for looking glass frames and other work requiring a clean, smooth cut. These saws will cut against the grain, as well as with the grain of the wood, leaving the corners square and smooth. It does not leave a ragged or fluff edge. The saw will always keep its shape until used up, and it is the saw you want to buy if you want good work.

Be sure and keep the saw perfectly round and joint the four bottom points. Saws are right and left hand.

When ordering, state size of Saw, also size and hand of Arbor the saw is to run on.

### Jointer Saws

Jointer saws are also used for tapering chair legs and backs, avoiding all the tearing out of the shaper knives. The work can all be done on one spindle. These saws cut against the grain as well as with the grain of the wood.

We can furnish Aluminum Collars with Jointer Saws for shaping with pattern.

5-inch .....\$2.50  
6-inch ..... 3.00  
7-inch ..... 3.50

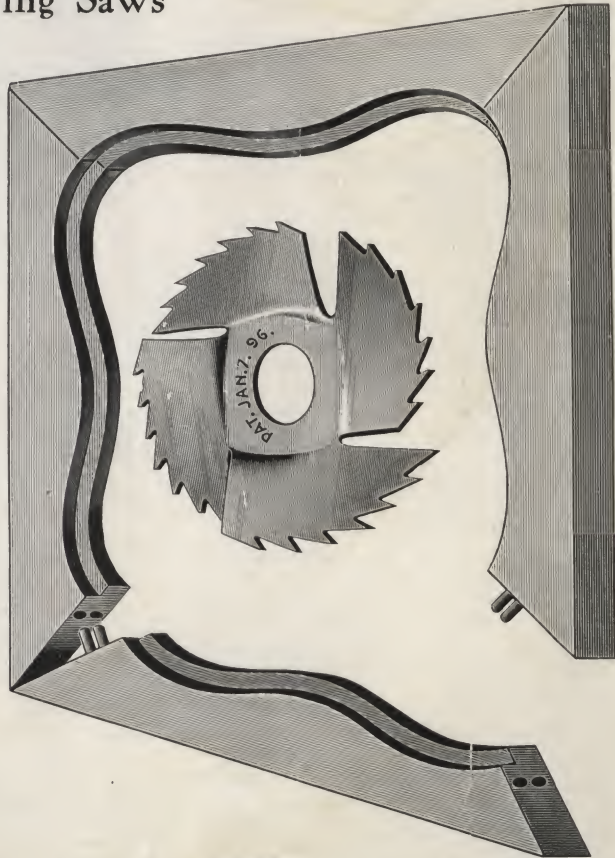
Collars with steel bushing, add ..... .60

When sharpening use a large emery wheel rest, place it a little below the center of arbor and lay the saw on it, and grind front and back of tooth. All kinds of Shaper Saws made to order.

### LIST PRICE

4-inch Rabbeting Saw, cut $\frac{3}{4}$ -in..\$4.50	6-inch Rabbeting Saw, cut $1\frac{1}{4}$ -in..\$8.50
4-inch Rabbeting Saw, cut 1 -in.. 5.00	5-inch Jointer Saw, cut $1\frac{1}{2}$ -inch.. 8.50
5-inch Rabbeting Saw, cut 1 -in.. 6.00	6-inch Jointer Saw, cut $1\frac{3}{4}$ -inch.. 9.50
6-inch Rabbeting Saw, cut 1 -in.. 7.00	7-inch Jointer Saw, cut 2 -inch..11.50

Saws under 4-inch diameter take 4-inch list; saws of odd diameter take list of next larger size.





## To Our Band Saw Patrons

We make a specialty of band saws from 1/16 inch to 6 inches wide for factory work. This line of saws is not chosen at random or from the maker who quotes the lowest price, but our stock has been selected with the greatest care after many years close association with the woodworking trade and careful study of their requirements.

Nothing but the highest quality of imported saw steel is used in these saws. Our business on them has been built up by demanding that every saw conform in detail to the high standard we maintain for our goods.

This accounts for the fact that our saws are used extensively throughout the United States and Canada.

A few suggestions for the selection and care of saws follows, which we believe our patrons will appreciate.

### NARROW BAND SAWS.

When ordering narrow band saws state clearly whether plain or beveled back is wanted. Give length, width, gauge and number of points to the inch. Bear in mind difference between points and teeth. Count the points at each end of the inch. (See illustration.) Five points equal four teeth, six points five teeth, etc.

Should points and gauge not be specified we will send standard sizes, but it is better to specify just what you want, also state whether saws are to be brazed and fitted.

The gauge of saws depends largely upon the diameter of the wheels, as well as the work you wish to do. Twenty gauge may be used on wheels up to 40 inches in diameter and larger, 21 gauge on wheels 36 inches in diameter and larger, and 22 gauge on wheels 30 inches in diameter and larger. Do not use heavy gauges on small wheels for they will break sooner than thinner gauges and when work does not require a heavy saw the thinner gauge is preferable. Twenty-one gauge can be used on most machines although some prefer 19 gauge, but they generally have heavy sawing where

the cut is deep and must be accurate to the line.

The width of saws depends upon the shape to be sawed, and it is well to keep on hand an assortment of widths. Never attempt to do work with an improper saw. Bevel back saws the same width as plain saws will turn a much smaller circle and are extensively used for fine sawing—for example, wood ornaments.

Please look over all saws when received to see that they are as ordered. A good plan is to put them on the machines and see that they run true before fitting them.

The set should be even and uniform and not too heavy. It pays to use a good setting machine. It will do quicker and better work than can be done by hand, but when the amount of setting to be done is not sufficient to justify installing a machine, saws may be set in the following manner:

Hold the saw firmly in a vise and set the teeth over against a beveled jaw or plate with a punch and hammer. Be careful not to set more than one half of the tooth, for if you set the whole tooth there is danger of twisting the blade.

Filing small band saws must be done carefully. Keep the teeth uniform in size and shape and file straight across the saw. Never file band saw teeth with a bevel, nor too deep. Especially on narrow blades. This method often causes saws to break and they will not cut well. See illustrations for correct method of filing. For saws wider than 3/8 inch we recommend round cornered band saw file. Always keep your saws sharp.

For brazing narrow band saws use the Lamp Brazier. It is better than tongs or irons.

A lap from 1/4 to 3/8 inch is enough for saws up to 3/4 inch wide, and 1/2 inch for wider saws. Small saws should be joined so they will have an even number of teeth, especially when they are set by machine. You never have to look for the odd tooth if this method is followed.

## Repairing Old Band Saws

Setting, each .....	\$0.25
Filing, each .....	.35
Welded, net new list.	

## Narrow Band Saws

MADE FROM  
THE BEST  
IMPORTED  
SWEDISH SAW  
STOCK.  
NOTHING BUT  
THE HIGHEST  
GRADE  
WORKMAN-  
SHIP.

## Electric Welded

SAWS FOR EVERY  
PURPOSE -- FROM  
1/16 INCH TO 6  
INCHES IN WIDTH

Width, Inches	Usual Gauge	Number of Teeth to Inch	Price, Per Foot
1/8	22 or 23	6 or 7	\$0.13
3/16	21 or 22	6	.13
1/4	21 or 22	5 or 6	.13
5/8	21 or 22	4 or 5	.14
1/2	21 or 22	3 1/2 or 4	.15
5/8	20 or 21	3-3 1/2 or 4	.16
3/4	20 or 21	2 1/2 or 3	.18
7/8	20 or 21	2 1/2 or 3	.20
1	20 or 21	1 1/2" or 5/8" pt. to pt.	.22
1 1/8	19 or 20	1 1/2" or 5/8" pt. to pt.	.24
1 1/4	19 or 20	1 1/2" or 5/8" or 3/4" pt. to pt.	.26
1 3/8	19 or 20	1 1/2" or 5/8" or 3/4" pt. to pt.	.28
1 1/2	19 or 20	1" or 1 1/4" pt. to pt.	.32
1 3/4	19 or 20	1" or 1 1/4" pt. to pt.	.38

Above prices cover Saws Set and Filed but not Brazed.  
If not Filed and Set, deduct 4 cents per foot.

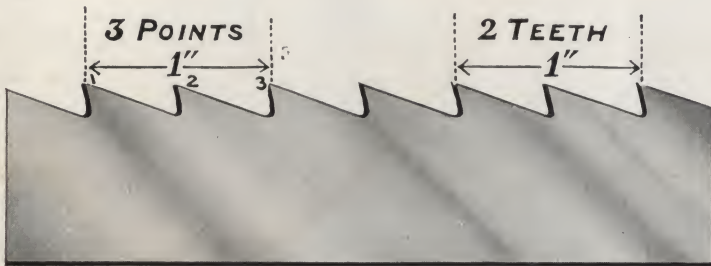
Brazing—1/4 to 1/2 inch, 50 cents each; 5/8 to 7/8 inch, 60 cents; 1 to 1 1/4 inch, 70 cents; 1 3/8 to 1 3/4 inch 80 cents.



New electric weld now furnished on all  
woodworkers' band saws.

Showing old style braze using brass and  
borax.

## Measure Saw Teeth Properly



There is always one more point per inch than there are teeth.

## Wide Band Saws

Brazed and Fitted

Width, Inches	Usual Gauge	Price, Per Foot
2	18 to 20	\$1.00
2 ½	18 to 20	1.20
3	18 to 20	1.40
3 ½	18 to 20	1.60
4	17 to 19	2.00
4 ½	17 to 19	2.20
5	17 to 19	2.40
5 ½	17 to 19	2.70
6	17 to 19	3.00
7	16 to 18	3.40
8	14 to 16	3.80
9	14 to 16	4.30
10	14 to 16	4.80
11	14 to 16	5.40
12	13 to 15	6.00

Saws of odd widths, not listed, take price of next wider size listed.

For saws of heavier gauge than listed add 5 per cent to list for each gauge heavier.

No extra charge for saws one or two gauges thinner than list; when more than two gauges thinner, add 5 per cent to list for each gauge.

**DOUBLE EDGE BAND SAWS.** List price per foot, all widths, advance 10 per cent over list prices of single edge saws as above.



## Scroll or Jig Saws

### Reversed Teeth



These reversed teeth saws are used for fine work and a few teeth cutting backwards at bottom prevent tearing out.

### Straight Teeth



When ordering saws with reversed teeth, advise distance from bottom hole to reversed part. For reversed teeth add 20% to price list.

6 inches	19 gauge	\$2.60 per dozen	$\frac{3}{16}$ to $\frac{1}{2}$ inch wide
7 "	19 "	2.80 " "	$\frac{3}{16}$ to $\frac{1}{2}$ " "
8 "	19 "	3.00 " "	$\frac{3}{16}$ to $\frac{1}{2}$ " "
10 "	18 "	3.40 " "	$\frac{3}{16}$ to $\frac{1}{2}$ " "
12 "	18 "	3.80 " "	$\frac{1}{4}$ to $\frac{1}{2}$ " "
14 "	17 "	4.20 " "	$\frac{1}{4}$ to $\frac{1}{2}$ " "
16 "	17 "	4.80 " "	$\frac{1}{4}$ to $\frac{5}{8}$ " "
18 "	17 "	5.40 " "	$\frac{1}{4}$ to $\frac{5}{8}$ " "

### Fay Thin Back Scroll Saws

Inches.....	8	9	10	11	12	13
Per Dozen.....	\$3.60	\$4.00	\$4.40	\$4.80	\$5.20	\$6.60
Inches.....	14	16	18	20	22	24
Per Dozen.....	\$6.00	\$6.60	\$7.20	\$7.80	\$8.60	\$9.60

## BURRILL'S Paramount Brazing Solution

Put Up Especially for  
the Brazing of Wide  
and Narrow Band Saws

A few drops of this solution applied to the laps with the dropper which is inclosed, will make a firm, clean-cut braze, on which there is no hard scale to be filed off when dressing up the lap.

It eliminates the drudgery of making a lap.

A perfect lap is guaranteed if directions are followed.

Put Up in 4-ounce Bottles

**Price, \$2.00**



## Atkins Silver Steel Saws

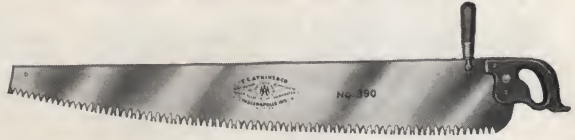
Atkins Special Steel Cross Cut Saws Nos. 330, 331 and 332



Atkins Cross Cut Saws Nos. 330, 331 and 332 are the original tuttle tooth, diamond point. The best known general utility saw in the world. Made of Atkins high grade special steel. Will be made in Silver Steel, if desired, at an additional cost. Satisfactory for ordinary service. No. 330 is 14x16 gauge, thin back; No. 331 is 14x18 gauge, thin back; No. 332 is 14x19 gauge, thin back.

Length.....feet	4	4½	5	5½	6	6½	7	7½	8
Price, each.....	\$4.25	\$4.70	\$5.20	\$5.75	\$6.25	\$6.80	\$7.35	\$7.85	\$8.40

### Atkins One-Man Tuttle Tooth Saw No. 390



Made of Silver Steel. Finely finished. Ground to run free and easy. Hardwood handle polished on edge, easy grip pattern.

Length, feet—

2½	3	3½	4	4½	5	5½	6
Price, each—							
\$3.20	\$3.80	\$4.50	\$5.10	\$5.75	\$6.35	\$7.00	\$7.60

### Atkins Hand, Rip and Panel Saws No. 53

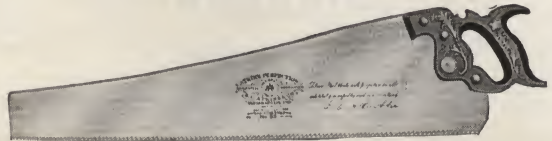


This saw appeals to high class mechanics for general carpenter work. The blade is of genuine Silver Steel, taper ground. It is given the Atkins Exclusive Damaskeen Finish. It has a skew back and is fitted with the Atkins Perfection Handle, made of applewood, embossed and polished, fastened to blade with three nicked screws and medallion. Made in both regular and ship patterns.

Length—

16"	18"	20"	22"	24"	26"	28"
Price, each—						
\$2.42	\$2.70	\$3.10	\$3.30	\$3.60	\$3.75	\$4.25

### Sheffield Hand Saw No. 59



Made of cast steel, fully warranted. Skew back with ribbon edge. Handle of seasoned beech, varnished and polished all over. Fastened to the blade by three brass screws and a medallion. Made in the following lengths:

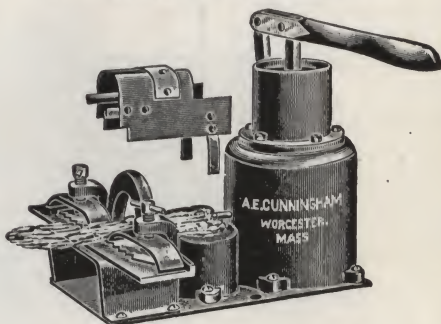
Length—

16"	18"	20"	22"	24"	26"	28"
Price, each—						
\$1.75	\$1.83	\$1.95	\$2.07	\$2.20	\$2.35	\$2.68



## Champion Brazer Outfit

For Brazing Narrow Band Saws



It has a hardened plate to guide in filing the laps (a very essential point in procuring a perfect braze).

It has a double "leather" bellows, no rubber.

It has an asbestos fire-pot to retain the heat, thus being necessary to use charcoal only on wide saws; also has an asbestos covered bench, making it perfectly safe.

It has clamps so arranged that you can finish the braze on it.

It has a small vertical vise for clamping the saw while filing the brass out of the teeth.

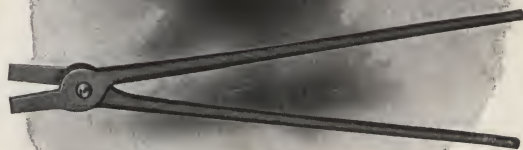
Last, but not least, it is so equipped that the whole operation is done on the machine.

Net price for complete outfit.....\$25.00

## Band Saw Brazing Clamp and Tongs



Price .....\$2.50



Price .....\$2.50



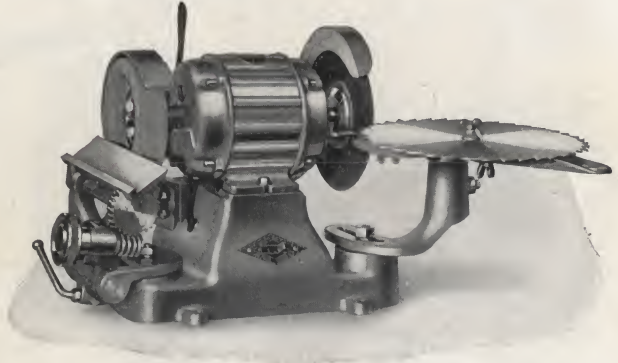
## Silver Solder for Brazing Saws

Per ounce,  $\frac{5}{8}$ " wide.....\$1.50



## Diamond Knife and Circular Saw Grinder Motor Driven

**PORTABLE  
RELIABLE  
INEXPENSIVE**



Built for fine accurate work, will grind knives both straight and concave including thick and thin knives, small hand plane irons and chisels.

Knives are ground true with the back insuring better balance.

Regular equipment includes grinding wheels and extra knife and chisel holders, grinding wheels are used dry and work is fed by hand.

The Saw Grinder is same as illustrated and described in our Circular Saw Grinder folder.

### SPECIFICATIONS

Saws from 5 in. to 22 in. any shape tooth from 4 teeth to 2 in. space.

Knives up to and including 24 in. lengths. Chisels and plane irons all sizes.

Requires only 24 in. x 24 in. bench space. Shipping weight 125 pounds.

Price, bench type \$115.00, with floor pedestal \$135.00.

## No. 462 Electric Brazer

For Band Saw Blades

The "Oliver" Electric Brazer utilizes the electric heat of resistances for melting down the soldering metal. No open flame, no danger of fire, no combustion and no formation of scale on the saw blade can take place, the conduction of heat allowing a sensitive control.

The "Oliver" Electric Brazer can be connected to any 110 or 220 volt electric current, needs no preparation, is always ready for work and causes only insignificant consumption of current because the brazing process lasts only a few seconds and more than 100 brazings can be effected by one Kilowatt-hour.

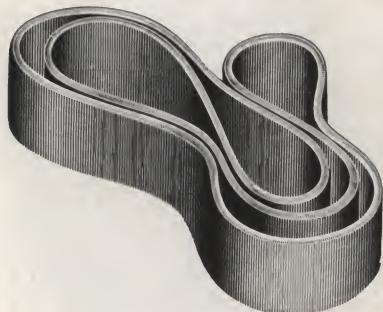


**Capacity up to 1 1/4-In. Band Saws**

The "Oliver" Electric Brazer cannot be damaged by wrong manipulation, needs no skilled workmen, but may be operated by unskilled men or boys.  
Price .....\$50.00

**Sent out on 10 days' trial with instructions.**

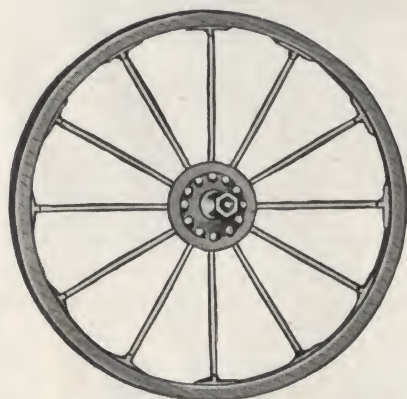
## BAND-SAW RUBBERS



We carry a large stock of all standard sizes of endless rubber bands for Band Sawing Machines.

### Prices for Wheels

12"	diameter,	1	"	wide....each,	\$1.50
14"	"	1 1/4"	"	.... "	1.50
20"	"	1 1/2"	"	.... "	2.00
26"	"	1 1/2"	"	.... "	2.50
27"	"	1 1/2"	"	.... "	2.65
30"	"	1 3/4"	"	.... "	3.00
33"	"	1 3/4"	"	.... "	3.50
36"	"	2	"	.... "	4.50
38"	"	2	"	.... "	5.00
40"	"	2 1/4"	"	.... "	6.50
42"	"	2 1/2"	"	.... "	8.00



Band Saw Wheels, wood or iron. We true up, repair, rebush, and put in first class shape on short notice.

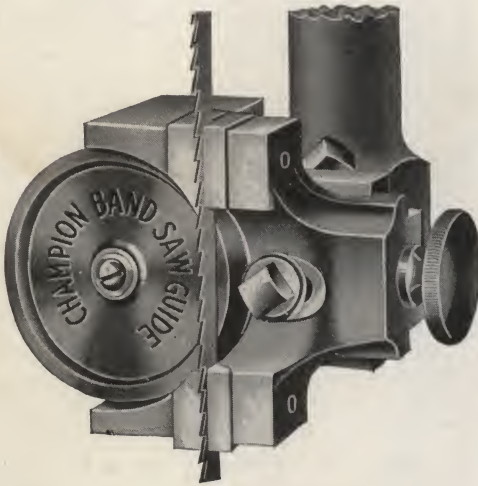
### INSTRUCTIONS FOR RECOVERING IRON BAND SAW WHEELS WITH ENDLESS RUBBER TIRES

Remove all dirt, grease, glue or cement from the face of the wheel with benzine or coal oil, using a sponge or a piece of cloth for the purpose; fasten the wheel firmly in a vise by the hub; mark the rubber band in four equal parts, also the wheel to correspond, with a piece of chalk, fasten the band to the wheel with a hand screw at one end of the chalk marks on both the wheel and band to correspond, stretch the band carefully on one side until the second chalk marks correspond and secure with the second hand screw, then stretch the band on the opposite side of the wheel until the third chalk marks upon the band and wheel correspond and again fasten with a third hand-screw; the wheel will now be one-half covered. Carefully stretch the remaining portion of the band over the wheel. In doing so, be careful that the band is not injured by coming in contact with the sharp corners of the wheel. Then take a round rod or roll of wood or iron, about one inch in diameter, and insert it between the rim of the wheel and band, passing it around the wheel and at the same time inserting the cement freely in the rear of the roll, both upon the face of the wheel and upon the rubber band. Be sure there is sufficient cement used until it gushes out at the edges of the band and wheel, then remove the rod or roll. Let the wheel remain in a dry place at least thirty-six hours before using, and when hardened trim off the surplus rubber and cement from the edges of the wheel and it is ready for use.

Cement for Iron Rims per Can.....\$2.00  
Cement for Wood Rims per Can..... 2.00



## Champion Band Saw Guide



It is a known fact that where backs of saws run against stationary guide plates, much heat is generated by the friction, causing saws to expand and crystalize at the back. This, beyond doubt, is the great cause of saws checking and breaking.

Non-Friction Band Saw Guides, now being endorsed by the principal manufacturers in this country, is the only guide having 1½ inch revolving bearing for saws without crystalizing or disturbing their temper, thus overcoming the difficulty of saw breaking.

Are made as upper and under guide, to fit any make machine and to accommodate saws from 1½ to 10 inches wide. Are sold entirely on their merits, satisfaction being guaranteed. Fitted to any make machine.

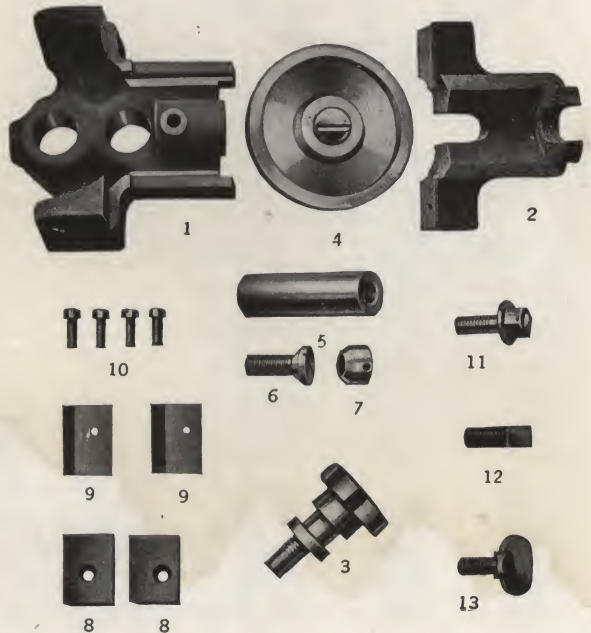
No. 0.	For small machine.....	Price \$12.00
No. 1.	For saws up to 1½-inch.....	Price 15.00
No. 2.	For Resaws up to 2-inch.....	Price 25.00

### Parts for Wrights or Champion Guides

We manufacture and keep in stock various parts for the Wright Band Saw Guides. Particularly prompt service can be rendered and we suggest that you get in touch with us when such parts are needed.

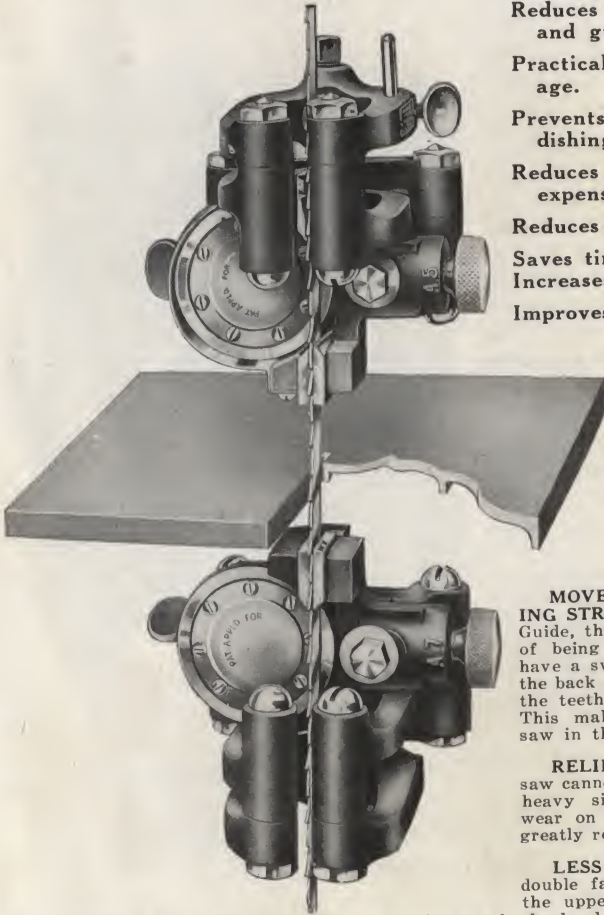
#### Prices

Part No. 1.....	\$4.50
Part No. 2.....	2.25
Part No. 4 and 5, set .....	4.50
Part No. 6.....	.25
Part No. 7.....	.25
Part No. 8, 9 and 10, set of 8 pieces .....	2.75
Part No. 11.....	.15
Part No. 12.....	.15
Part No. 13.....	.15





## The Newell Automatic Band Saw Guide



Reduces friction and wear on saw and guide.

Practically eliminates saw breakage.

Prevents twisting, buckling and dishing of saw.

Reduces sharpening and setting expenses.

Reduces danger of accident.

Saves time and material.

Increases output.

Improves the quality of work.

**MOVEMENT — RELIEVES TWISTING STRAINS**—In the Newell Automatic Guide, the jaws or guiding parts, instead of being rigid, as in all other guides, have a swinging movement which allows the back of the saw to swing freely while the teeth are held practically stationary. This makes it impossible to twist the saw in the Guide.

**RELIEVES SIDE FRICTION**—As the saw cannot bind against the guide plates, heavy side friction is eliminated, and wear on both guide plates and saw is greatly reduced.

**LESS THRUST FRICTION** — The double faced ball-bearing roller on both the upper and lower guide, carries the

entire thrust of the saw, thus reducing friction on the back edge of the saw.

**AUTOMATIC GUIDING ACTION**—The swinging movement automatically compels the saw to follow true to the line of pressure. Any tendency for the saw to deviate causes the guide to react upon it, immediately correcting the deviation. The Newell Automatic Band Saw Guide is the only one on the market having this feature.

**SAVES TIME AND LABOR**—The Newell Automatic Guide does the same work better and in less time than does a rigid guide, because the operator can force the saw around the shortest curve without kinking or straining it. Deep cuts can be made straight from top to bottom without dishing out, thus enabling the operator to saw close to the line without spoiling his work, making hand finishing unnecessary.

**SAVES SAWS**—The relieving of side friction, and the swinging movement of the Guide, bring saw breakage to a minimum, enabling the Guides to soon pay for themselves with this one item alone. With the Guide swinging, smaller cuts and shorter curves can be made with larger saws, thus eliminating the need for small delicate saws which break easily. A 1¼" saw is as wide as need be used in any work on machines up to forty-eight inches.

**PRICE**—\$50.00 per set, F. O. B. Irwin, Pa. In ordering always state name of band saw machine to which guides will be attached that proper fittings may be included.

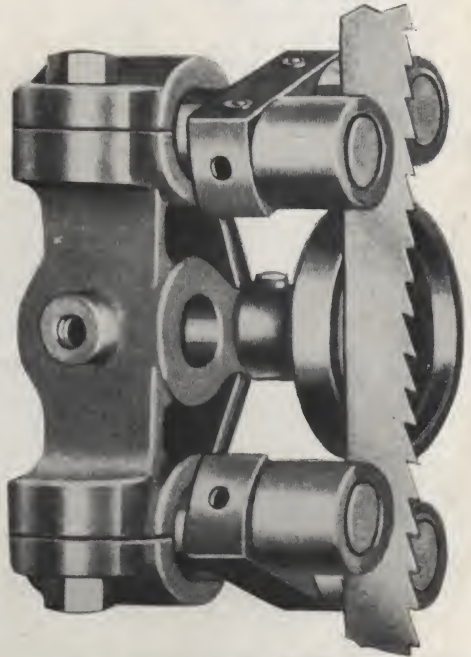
## The Lehmbeck 5 Roller Frictionless Guide

The illustration shows exactly how the five rollers of the Lehmbeck Guide hold a saw to its true and proper course without friction.

As you know, when a piece of stock is cut by a band saw, it tends to deflect the travelling saw from its proper course. To overcome this tendency some sort of a guide must be employed. With the rigid type of guide now in general use, the travelling saw, (when deflected) strikes a stationary guide, friction starts, heat follows, crystalization and breakage results. The whipping end endangers the operator. Production stops. Costs rise while the saw is being repaired. Efficiency is hampered and profits are impaired.

The five rollers of the Lehmbeck Guide eliminate friction. When a piece of stock is cut by a band saw equipped with the Lehmbeck Guide and the stock tends to deflect the saw from its proper course, the guide rollers are immediately brought into play, correct the deflection without friction, **BECAUSE THE ROLLERS TRAVEL WITH THE SAW.** By eliminating friction the Lehmbeck Five Roller Guide practically eliminates saw-breakage.

U. S. Patent Pending



**Price: Roller Guide, \$30.00; Universal Bracket (if needed), \$2.50**

## Mohawk Dutchman Band Saw Guide

Ball Bearing



The Mohawk Guide shown at left, can be furnished on special order. It prevents the cracking of the saw and will not crystalize or disturb the temper of the saw. The wheel forming the back of the guide has a concave surface on its periphery, and is set on an angle so that the back of the saw passes diagonally across the periphery of the wheel and revolves it. Thus the point of bearing of the wheel on the back of the saw is constantly changing and prevents the saw grooving the surface of the wheel by a continuous action in any one place. It runs on a ball bearing, requires little oil, never heats, and its always in position. Price, each, \$30.00.

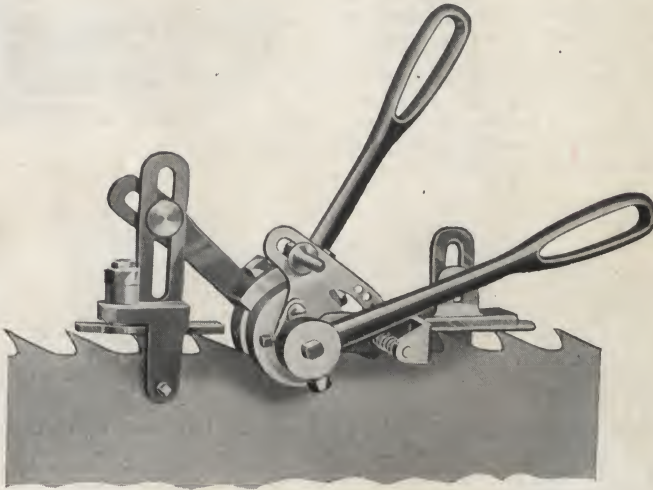


## The Crowell Universal Saw Swage

The "**CROWELL**" Swages are built to meet every requirement for fitting Band, Circular and Gang Saws from 6 to 22-gauge. Designed for swaging all kinds of saws that cut with the grain of the wood. Will swage teeth of any angle from 35 to 50 degrees.

**For Band, Circular and Gang Saws.**

Equipped with Spring Front Guard and Back Shoe



Size	Die	For Saws	Shipping Weight	PRICE
No. 00	$\frac{1}{4}$ "	19-20-21-22 gauge	4 lbs.	\$28.00
No. 0	$\frac{5}{16}$ "	19 gauge and thinner	5 lbs.	\$28.00
No. 1	$\frac{3}{8}$ "	16-17-18-19	5 lbs.	\$28.00
No. 1½	$\frac{7}{16}$ "	13-14-15-16-17-18	7 lbs.	\$30.00
No. 2	$\frac{1}{2}$ "	12-13-14-15-16	9 lbs.	\$32.00
No. 3	$\frac{9}{16}$ "	9-10-11-12-13	13 lbs.	\$34.00
No. 4	$\frac{5}{8}$ "	6-7-8-9-10-11-12	14 lbs.	\$36.00

All Crowell Universal Swages are the same model. It takes only a minute to adjust Swages to work on either Band, Circular or Gang Saws.



## Holdwell Filing Clamp

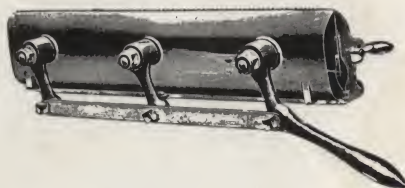


This filing clamp is suitable for filing band saws up to 1¾ inches in width. The clamping device is arranged to act at three points on the clamp, thus holding the saw firmly throughout the entire length of the clamp. The clamping lever extends downward so that it can be operated by the knee while the hands hold the saw in proper position.

Length of clamp.....20 inches  
Weight, boxed .....28 pounds  
Price .....\$12.00

## Champion Filing Clamp

This vise has a corrugated steel piece on the inside, which forms a bearing for the saw blade to rest on the entire length of the vise. It can be adjusted by means of levers on both ends of the vise for different widths of saws. Length 18 inches. Made in two styles—solid cast iron or cast iron with steel jaws.



No. 1. Solid Cast Iron.....\$18.00  
No. 2. Cast Iron with Steel Jaws..... 20.00

## Adjustable Circular Saw Vice

For All Diameters up to 18 Inches

This vise can be used in either a vertical or tilting position; and the adjustment from one position to the other can be made very quickly. This vise will be shipped on thirty days approval to any responsible party. Sold under a positive guarantee to give entire satisfaction.

Price .....\$15.00



Tilting  
Position

## Bench Pulleys for Filing



No. 88. Pair 18-inch wheels. Net 60 lbs., crated, 100 lbs.....\$18.00

## Brazing Compound for Band Saws

A Brazing Compound used for cleaning laps or solder preparatory to brazing Band Saws. Its adoption by Saw Makers and Operators was instantaneous. No one can afford to, or will, be without it after using.

No borax, acid or other chemical need be used. Band Saw Filers everywhere are enthusiastic in its praise. There is a repeatedly increasing demand for this Compound, and the large number of orders received from those who have used it demonstrates conclusively that it is an article well worth its cost.

PRICE—4 oz. bottle, \$3.00, F O. B., Rochester.

We are in position to furnish best grade rubber bands for band saw machines.

## Upset Swages

(H. D. Pattern)



No. 00	For saws and groovers up to $\frac{1}{2}$ " thick.....	\$8.00
No. 0	For saws and groovers up to $\frac{3}{8}$ " thick.....	7.00
No. 1	For large circular saws.....	5.50
No. 2	For small circular and band saws up to 10 gauge.....	4.50
No. 2½	For circular, band and gang saws, not over 13 gauge.....	4.50
No. 3	For small circular saws and band saws, not over 15 gauge.....	3.50
No. 4	For wide band saws.....	5.00

## Saw Gauges



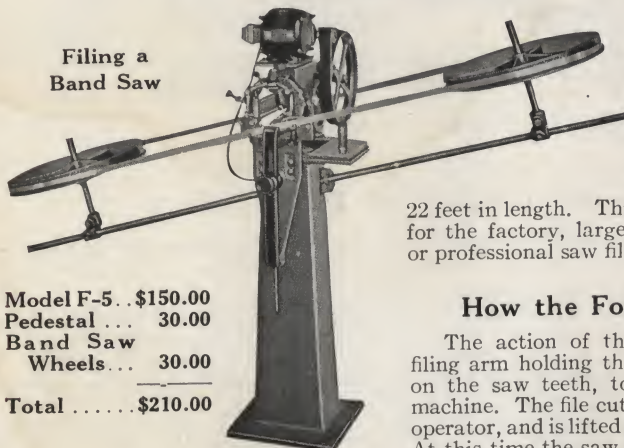
Price. Each.....\$2.25



## Model F-5 Power Driven Foley Filer

The only machine made that files  
Hand, Band and Circular Saws

Filing a  
Band Saw



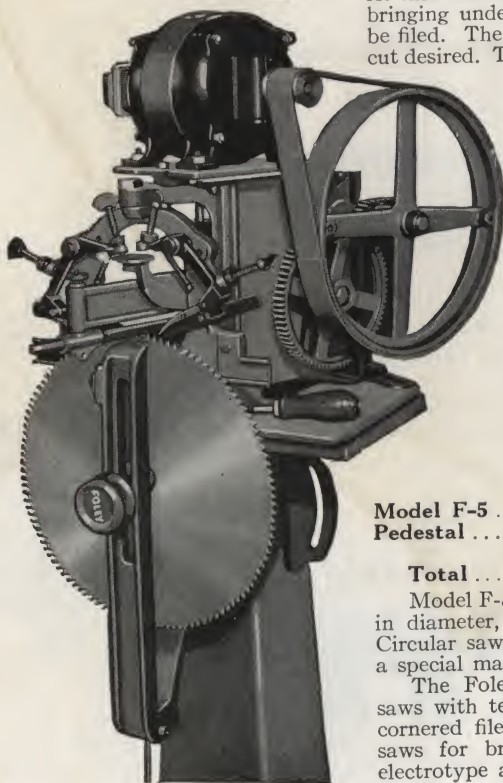
Model F-5... \$150.00  
Pedestal... 30.00  
Band Saw  
Wheels... 30.00  
Total ..... \$210.00

Any Model F-5 Foley Filer will file band saws from  $\frac{1}{8}$ " to  $4\frac{1}{2}$ " wide, with 3 points to the inch or more, whether band saw wheels are used or not. The adjustable rods and wheels take band saws up to 22 feet in length. This complete equipment is ideal for the factory, large contractor, industrial school or professional saw filer.

### How the Foley Filer Operates

The action of the machine is obtained by a filing arm holding the file, and a feed pawl acting on the saw teeth, to guide the saw through the machine. The file cuts on the stroke away from the operator, and is lifted above the saw as it is returned. At this time the saw is advanced by the feed pawl, bringing under the file the next gullet or space to be filed. The file can be adjusted for any depth of cut desired. The feed pawl action is quickly changed for any number of points per inch from 3 to 16. The Foley automatically joints the saw as it is filed, bringing large and small teeth back to equal size, and keeping them even.

### Filing A Circular Saw



Model F-5 ..... \$150.00  
Pedestal ..... 30.00

Total ..... \$180.00

Model F-5 files circular saws from 3 to 16 inches in diameter, with 3 points to the inch or more. Circular saws up to 24 inches in diameter require a special machine at \$15.00 extra charge.

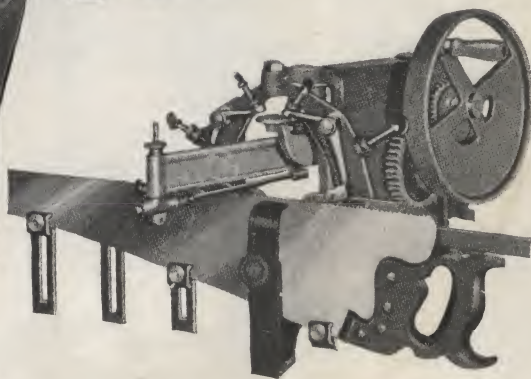
The Foley files all cross-cut and rip circular saws with teeth that can be sharpened with a 3-cornered file. It also files metal cutting circular saws for brass, copper, newspaper, print shop, electrotype and metal molding work.





Model F-5  
\$150.00

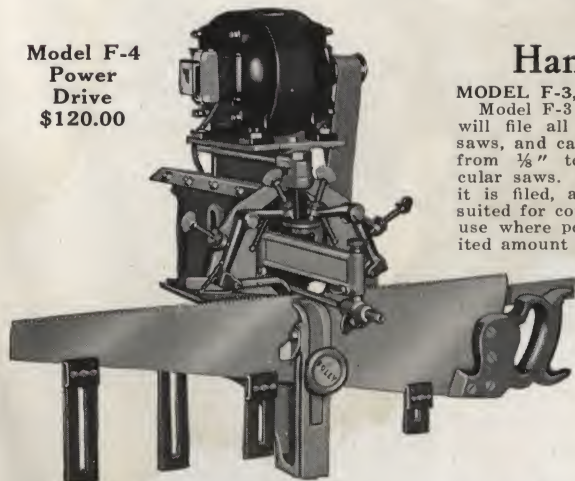
### Filing a Hand Saw



### Hand Driven Filer

MODEL F-3, FOR BENCH USE ONLY, \$75.00

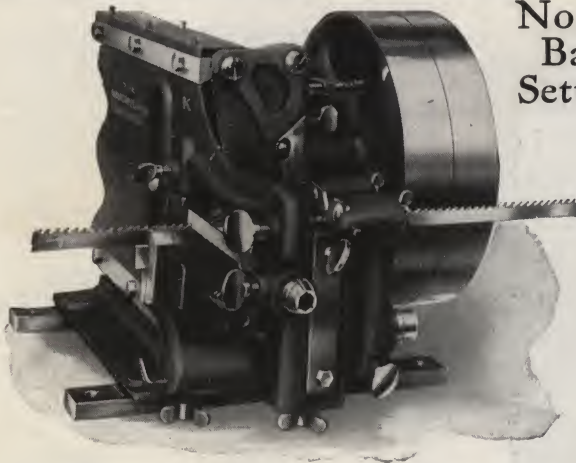
Model F-3 is made to fit the work bench. It will file all hand, back, meat and mitre box saws, and can be equipped for filing band saws from  $\frac{1}{8}$ " to 2" wide. It will not file circular saws. It automatically joints the saw as it is filed, and will retooth hand saws. It is suited for contractors, carpenters and individual use where power is not available, or for a limited amount of filing.



Model F-4  
Power  
Drive  
\$120.00

### Carpenter's Special for Hand Saws Only

The Foley Model F-4 is designed especially for the carpenter, contractor or builder who wants to keep his own saws and those of his men in perfect cutting condition. It files all types of hand saws—crosstut, rip, back and mitre box saws. It will retooth saws also.



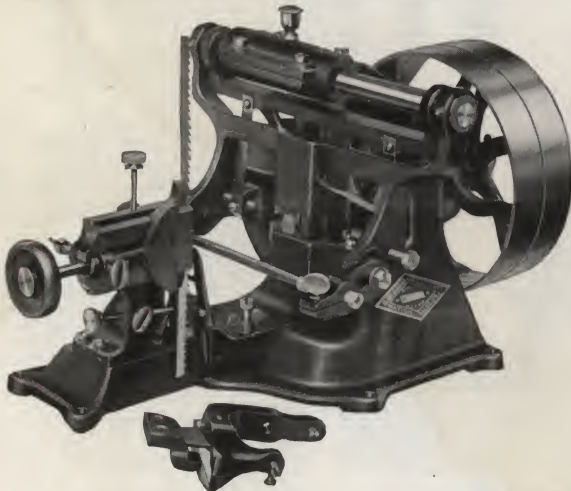
## No. 6 Combination Band Saw Filing, Setting and Jointing Machine

This is the only machine made that performs the two operations of filing and setting the band saw at one time. It gives each tooth a clean, sharp cut, and can be so delicately adjusted as to leave the teeth without a particle of burr.

The setting device not only sets the teeth perfectly, but also each tooth in such a way as to allow the proper clearance behind the cutting edge. All wearing parts are made of steel, and the vise, through which the saw passes, is steel lined. Standard files,  $4\frac{1}{2}$  inches extra slim taper or 7-inch long, slim taper, are used. Can also be arranged for direct motor drive.

### COMBINATION BAND SAW FILING, SETTING AND JOINTING MACHINES FOR SAWS UP TO 2' WIDE

MODEL K, Belt Drive, bench type.....	\$145.00
With 18" diam. Bench Type Wheels.....	170.00
Motor Drive, bench type.....	220.00
With 22" diam. Bench Type Wheels.....	250.00
Belt Drive, mounted on Pedestal with 18" diam. Pedestal Wheels.....	225.00
Motor Drive, on Pedestal with 22" dia. Pedestal Wheels.....	295.00
MODEL K-2 Belt Drive, bench type.....	150.00
With 18" dia. Bench Type Wheels.....	175.00
Motor Drive, bench type.....	225.00
With 22" dia. Bench Type Wheels.....	255.00
Belt Drive, mounted on Pedestal with 18" dia. Pedestal Wheels.....	230.00
Motor Drive, on Pedestal with 22" dia. Pedestal Wheels.....	300.00



## No. 4 Combined Filing and Setting Machine

This machine occupies very small space as the saw hangs from a peg overhead and dispenses with filing wheels and such apparatus. It files and set saws from  $\frac{1}{16}$  to  $1\frac{1}{2}$  inch width, and from 3 to 15 points per inch. Other sizes of this machine can be furnished to set and file saws to  $4\frac{1}{2}$  inches wide. The feed is accurate and positive, requiring no attention after saw is properly adjusted.

This type of machine can also be arranged for motor drive with direct connected motor.

No.	Width of Saws Inches	Feed	Weight Pounds	Pulleys Tight and Loose Inches	Speed	Net Price
1	$\frac{1}{16}$ to $1\frac{1}{2}$	3 to 15 pts. to inch	55	$9 \times 1\frac{1}{4}$	80 R.P.M.	\$75.00
2	$\frac{1}{16}$ to $2\frac{1}{2}$	2 to 15 pts. to inch	60	$9 \times 1\frac{1}{4}$	80 R.P.M.	80.00
3	$\frac{1}{4}$ to $4\frac{1}{2}$	8 pts. to $1\frac{1}{2}$ in. space	100	$12 \times 1\frac{3}{4}$	60 R.P.M.	105.00
No. 1 Motor-driven machine .....						\$115.00



## New Band Saw Filing Machine, No. 3

Guarantees Accurate and Perfect Work

**Design and Construction.** Solidly built and so simple that it takes but a few moments to regulate and adjust the saws. Needs no attention after once being started.

**Uneven Teeth.** Old saws with uneven teeth are filed as perfect as new saws. All teeth are filed to a proportionate height.

The pressure of the file is adjusted by a spring.

Movable parts are operated by one shaft. No lost motion. No gears. Everything simple—durable and reliable. Fewer wearing parts, less repairs.

The files used are ordinary 6-inch taper saw files.

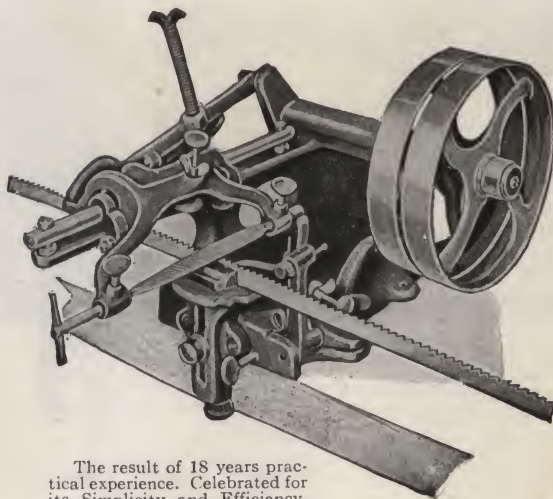
The Feed Finger is adjustable to teeth from  $\frac{1}{16}$ " to  $\frac{5}{8}$ " spacings.

The Vise will take saws from  $\frac{1}{8}$ " to  $1\frac{1}{2}$ " in width.

**Operation.** The speed should be from 50 to 60 revolutions per minute, the machine filing the same number of teeth.

**No Vibration.** No Clutch Pulley, but a tight and loose pulley.

The machine does not injure the point of the tooth in any way and leaves no burr or bevel on the face or back of the tooth. Price \$50.00



The result of 18 years practical experience. Celebrated for its Simplicity and Efficiency, and for the accurate and uniform work it produces.

## Double Action Band Saw Setter

Both Hand and Power Setters for fine tooth saws. Sets the teeth faster, more accurately, and more uniformly than can possibly be done by hand.

The feeding and setting mechanism are strong and positive. Pawls and hammers of the finest steel, properly hardened. Feeds and sets two teeth at a time with each revolution of the pulley. The force of the blow may be regulated to suit the weight and temper of the blade being set.

No. 83A. Automatic Saw Setter; a power machine for Band, Hack and Meat Saws. Will set up to 200 teeth per minute, when desired. Sets saws from  $\frac{1}{8}$  up to 3 inches wide with teeth spaced  $1\frac{1}{4}$  inches or less between points. Pulley 6 by  $1\frac{1}{4}$  inches to run 25 to 50 R. P. M. Weight, 45 pounds net.

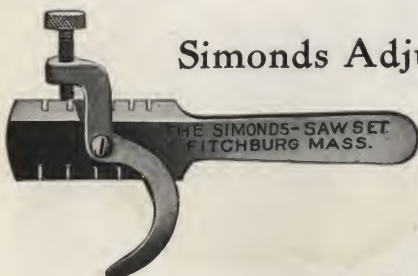


Automatic Band Saw Setters

Price .....	\$50.00
No. 83. Automatic Saw Setter, Hand Feed for saws $\frac{1}{8}$ to 3 inches wide with teeth spaced $\frac{3}{4}$ inch or less between points. Weight, 29 pounds. Price.....	35.00
No. 82A. Automatic Saw Setter, for saws $\frac{1}{8}$ to 1 inch wide, spaced $\frac{5}{8}$ inch or less between points. Weight, 20 pounds. Price.....	30.00



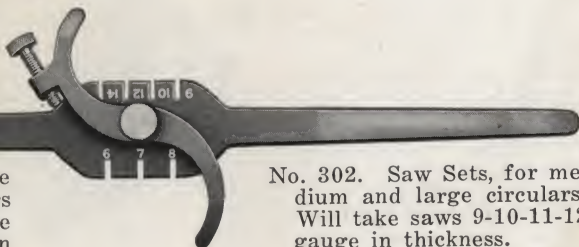
## Simonds Adjustable Saw Sets



Made in three sizes and provided with an adjustable gauge, which regulates the set and gives absolute uniformity.

No. 301. Saw Set with one handle, for small circulars and band saws, will take saws 14 to 19 gauge in thickness.

Each .....\$6.75



No. 302. Saw Sets, for medium and large circulars. Will take saws 9-10-11-12 gauge in thickness.

Each .....\$8.75

### Saw Sets

No. 303. Saw Sets, with one handle. Will take saws 14 to 17 gauge in thickness .....\$4.00



No. 304. Saw Sets, with two handles. Will take saws 7-9-11-13-15 gauge in thickness. ....\$6.00



## Champion Automatic Trip Hammer Circular Saw Set

Force of blow depends on height to which setting hammer is lifted and on whether 1, 2 or 3 springs are employed. The farther the teeth extend over anvil and the harder the blow, the greater the set given. The blows are always alike and a uniform set is bound to result. This is the most rapid, powerful and efficient Circular Saw Set, manufactured, so simple and exact working that a boy can do perfect work.

Cone will accommodate arbor holes 11/16 to 3 3/8 inches in diameter.

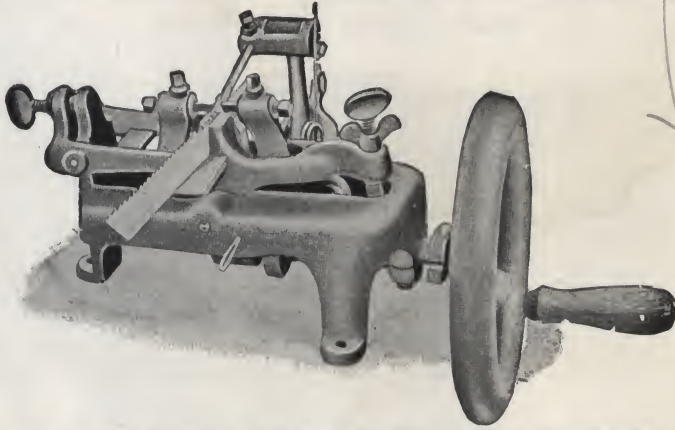
For Saws from 5 to 38 inch diameter, Rip and Cross Cut.



Price

**\$25.00**

## New Band Saw Setting Machine, No. 3



**Built as a High-Grade Tool and Sold Under Positive Guarantee to Give Entire Satisfaction**

The Machine will give a fine, medium or coarse set.

The Feed Finger is adjustable to teeth from  $\frac{7}{8}$  to  $1\frac{1}{2}$  inches long.

The Vise will take saws from  $\frac{1}{8}$  to  $1\frac{1}{2}$  inches in width and by automatically gripping the saw while tooth is being set, will prevent twisting of any fine and narrow saw blades.

All adjustments for different widths, tooth, etc., is regulated by two-thumb screws.

The Speed should be 100 revolutions (200 teeth—per minute). A saw can be set in 4 or 5 minutes. The machine can be operated by power if desired.

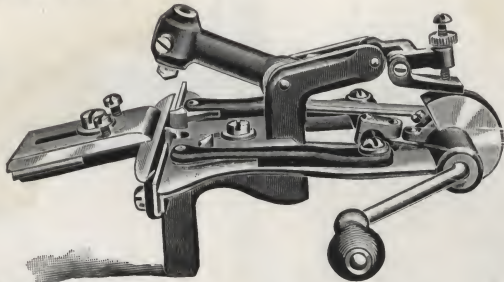
The Construction—The machine is built solid and strong, yet the mechanism is so simple that anyone who can turn a crank can set a saw better than the best mechanic could do it by hand.

Duplicate Parts will be furnished in case any part of machine should get broken or in case of excessive wear. This will make machine virtually as good as new.

Trial—If you have not seen this machine in operation, just write us and we will send you a machine on 30 days' trial.

**Price \$25.00**

## No. 8, Automatic Band Saw Set



**Price \$15.00**

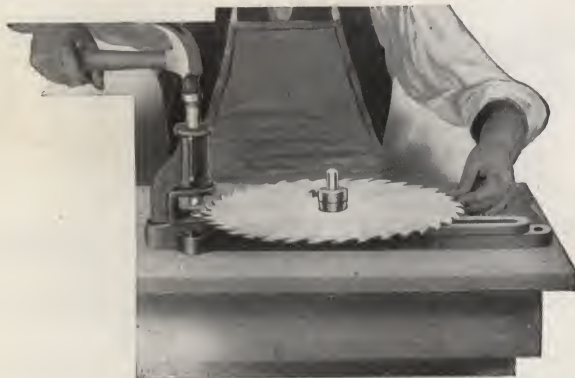
This set is widely known and needs no recommendation.

It is an automatic machine, easily adjusted to fit any size tooth, and will set a saw up to  $2\frac{1}{4}$  inches in width.

With this machine a person can set a saw in five or eight minutes, according to number of teeth.



## Champion Circular Saw Set for Rip and Cross Cut Saws



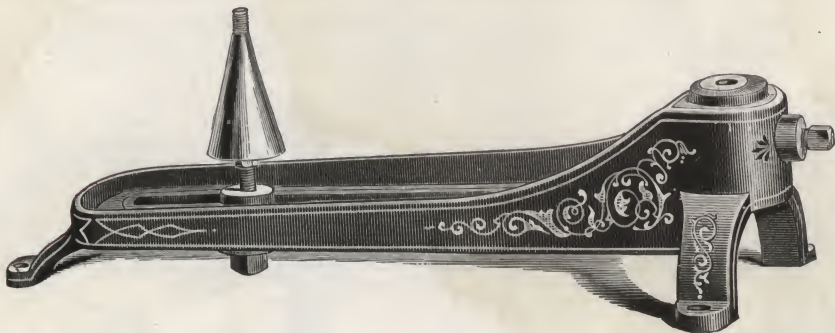
All the teeth must be set alike and each do its share of the cutting—then only, do you have a circular saw giving the most satisfactory service.

### The Champion Circular Saw Setting Machine

Will condition your saws for satisfactory service—will set any saw from the smallest up to 36-inch diameter, giving each and every tooth an equal and uniform set. Shipped on 30-day free trial.

Price .....\$15.00

## Keystone Setting Stake for Circular Saws

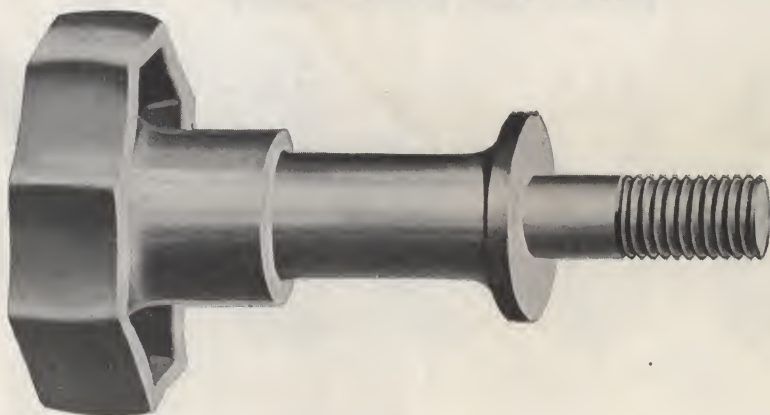


This valuable tool can be adjusted to set any saw from six to thirty inches in diameter. The cone is moved in or out to suit the diameter of the saw, and raised or lowered, as may be required. The movable anvil is made of hardened steel, and some portions of the face being beveled more than others, the operator can regulate the amount of set as desired.

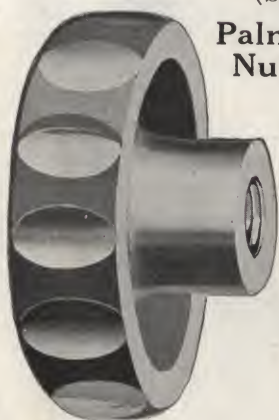
Price, each .....\$12.00



## Extra Long Palm Screw



For Jointers, etc.....\$2.00  
(Specify size and length of screw.)



**Palm  
Nut**

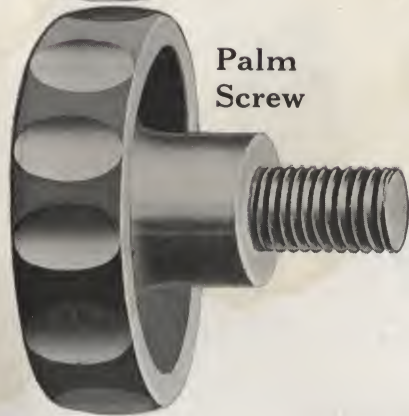
### PALM NUTS

	Price, Each
2-in. diameter with threaded hole.....	\$0.75
3-in. diameter with threaded hole.....	1.00
4-in. diameter with threaded hole.....	1.25

### PALM SCREWS

	Price, Each
2-in. diameter with screw.....	\$1.50
3-in. diameter with screw.....	1.65
4-in. diameter with screw.....	1.85

(Specify size and length of screw.)



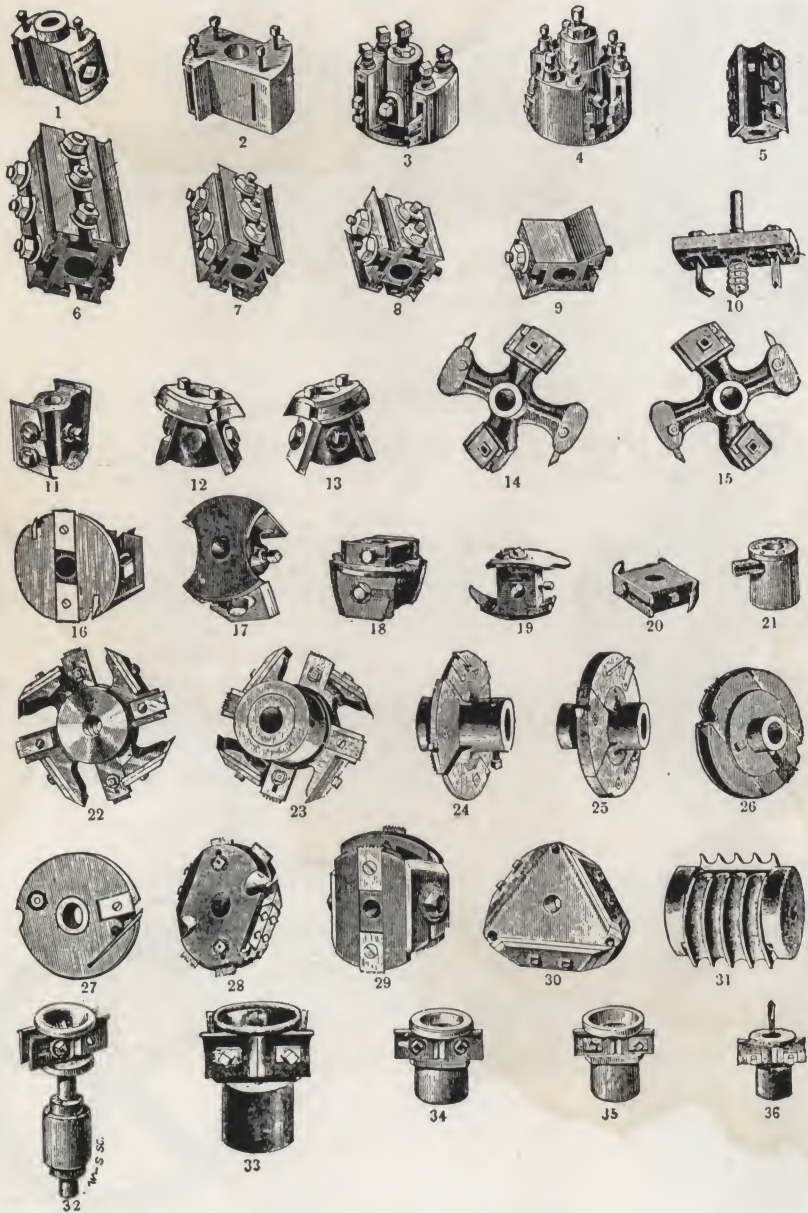
**Palm  
Screw**

**Hand Wheels  
10-Inch Diameter**



Each, \$4.00

## Cutter and Dado Heads

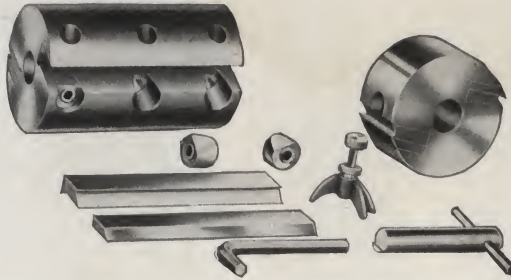


Prices on Application



## Safety Shaper Heads

Crescent Safety Shaper Heads are made on the same principle as the Crescent Safety Jointer Heads, Cutting diameter,  $3\frac{1}{4}$  inches and heads are furnished with two knives. Diameter of hole, 1 inch.



### List Prices of Crescent Safety Shaper Heads, F. O. B. Factory

Size of Head, 2 inches.....	\$45.00
Size of Head, 4 inches.....	65.00
Size of Head, 6 inches.....	75.00

## Fluting Heads No. 1

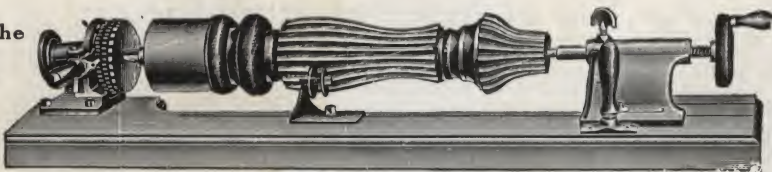
These heads are especially adapted to furniture and light planing mill work. They have a wood base which permits extending to take work of any diameter and any length without adding expense or much weight; an item much appreciated by all wood workers.

The head stock has a face plate; its advantages are shown in circular mailed on request.

The dividing plates are made of cold-rolled steel, and will space 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 16, 20, 24, 28, 40 and 48.

In the design and construction of these Heads it was our aim and object to bring out speed and accuracy. This we have accomplished by making all parts rigid, and so arranging the dividing head that the spacing can be done without the operator changing the position of either hand or counting.

See the  
Face  
Plate



(Fig. 1)

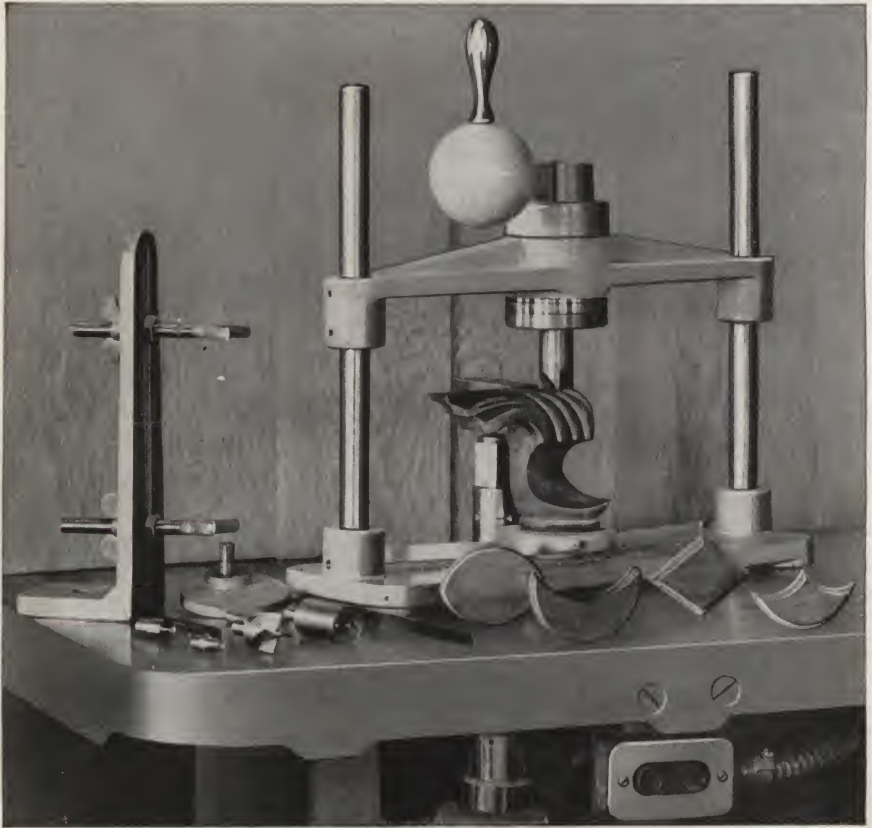
Showing the Heads arranged for short work, such as table legs, etc. The head and tail stocks can be mounted on a long base, for fluting porch columns, etc. Price .....\$30.00

Distance from base to center of spindle is 3", but standards can be elevated to take larger work.

## The Baar Shaper Turning Attachment

Designed to Operate in Connection With Any Shaper

Will absolutely cut the labor cost at least 75% on round or irregular shaped trimmings. Queen Anne legs, rosettes and novelties of any kind where accuracy is required.



## For Use in Any Furniture Factory

The Baar Shaper Turning Attachment is not only adapted by small plants but some of the largest furniture factories in the country are operating it constantly with very satisfactory results. The attachment is very simple to operate and does not require a skilled operator. Its construction is very rigid, making it positively safe when in operation.

The Baar Shaper Turning Attachment is easily installed on any shaper by drilling one  $\frac{3}{8}$ -inch hole in shaper bed nine inches from center of shaper spindle at the most convenient operating position. When not in use it can instantly be removed from shaper. Cams are not furnished with attachment but can be made of wood or metal in any desired shape at a very small cost.

### SPECIFICATIONS

Base and top are made of cast iron and sufficiently strong for hard usage. Adjusting rods are of steel, 16 inches apart, vertical adjustment 11 inches between center. Spur  $1\frac{3}{16}$  inches in diameter, centers are  $\frac{5}{8}$  and  $\frac{3}{4}$  inches respectively.

Ball Thrust Bearing eliminates friction when work is clamped.

### EQUIPMENT

Attachment complete with one spur, two centers, one eccentric bed plate, one hinge pin, one tension spring, one cam holder and one centering device.

Net Weight, 63 Pounds

Net Prices, \$75.00, f. o. b. Grand Rapids, Mich.



## Champion Panel Raiser Head

Your shaper can be utilized for panel raising by the application of the new Panel Raiser Head.

Here is an opportunity to further increase the production power of your shaper. Try one of these heads, see for yourself just how panel raising can be done without additional equipment.

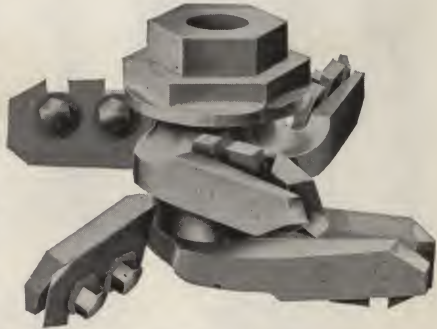
This special head permits raising both panels at one operation, quicker, handier and more economical than on the hand-feed panel raising machine. Will raise all sizes and shapes of panels.

The Champion Panel Raiser Head is of brass, adjustable to different thickness of lumber. Upper section is held firmly in place of locknut on top of head.

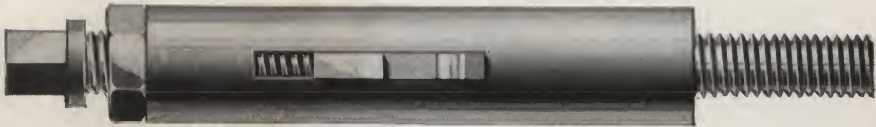
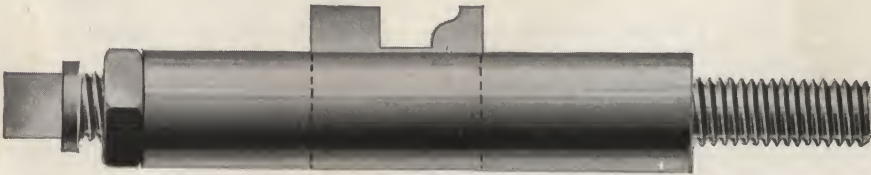
The knives are set at such an angle as to permit free cutting, thus producing clean, accurate work, with a greater degree of rapidity than on the regular panel raising machine. Three knives are used on each section and are renewable.

Made of bronze to fit any size shaper spindle.

Price, each, net.....\$40.00



## French Slotted Spindles for Vertical Shapers

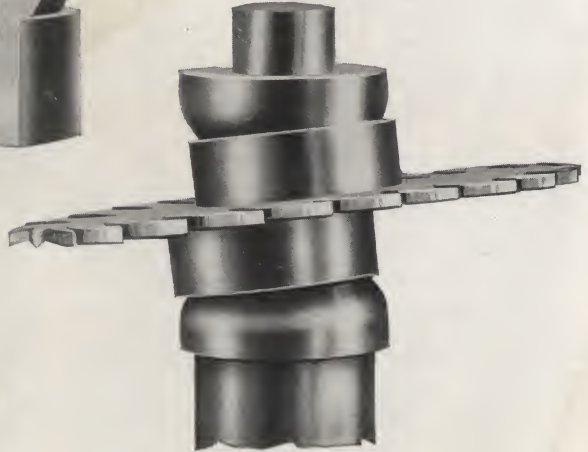
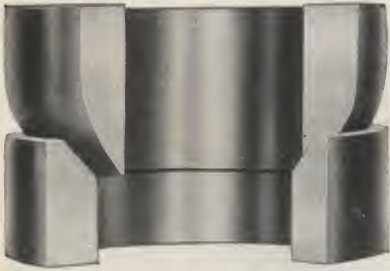


For carrying one knife only which is secured by hardened steel screw used on small radios, work where the use of slotted collars is not permitted.

Price  $\frac{3}{4}$ " or 1" dia. with slot  $\frac{1}{8}$ "x $2\frac{5}{8}$ " without knives.....\$32.00

When ordering, send full particulars, size of threaded shank and whether right or left hand thread.

## Ball Joint Filling Collars for Wood Shapers



Ball Joint Filling Collars are to be used directly over slotted collars, and will overcome any difference there may be in knives.

Insures an equal pressure on both knives and will give a true running spindle, enabling operator to do smooth work.

Ball Joint Filling Collars are made of good quality steel; 2 inches outside diameter and are always kept in stock by us to fit the following sizes of spindles:

$\frac{7}{8}$ "      1"       $1\frac{1}{8}$ "       $1\frac{1}{4}$ "

**\$18.00 per set**

2 pairs to each set

Other than above sizes are special and will be made to order at an additional charge.

Ball Joint Collars for Wabbling purposes.

Place one pair collars upside down, and other pair right side up, with Saw in between.

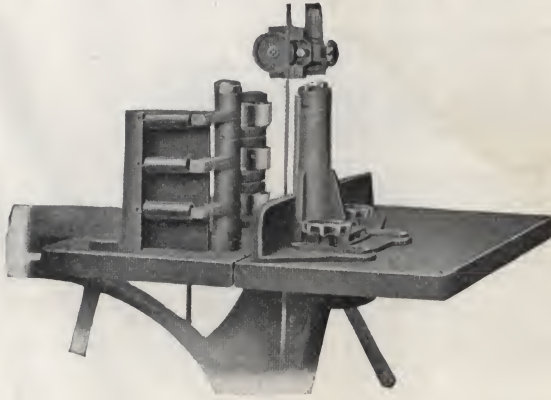
See cut above.

Can be used either on Shaper or Saw Mandrel.

Will positively guarantee not to slip or move and will guarantee to stay in any position placed.



## Resaw Gauge for Band Saws



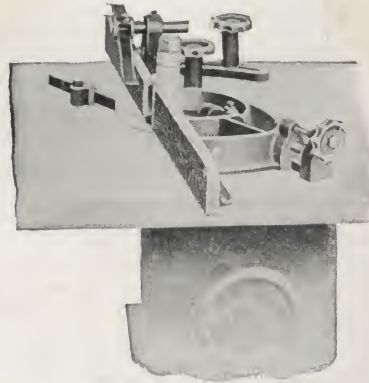
This Resaw Gauge can be attached to any make of band saw by drilling and tapping a few holes in the table. It is for hand feed and answers nicely when there is but a limited amount of resawing to be done. The rollers are to be placed just a little forward of the saw-guide, so as not to interfere with the raising and lowering of the guide. In this way narrow lumber may be resawed and the guide adjusted down close to the work. The small rollers on the left side give flexibility for

irregular lumber, and the springs can be adjusted for heavy or light pressure. It is made in two sizes. The No. 1 is for use on small band saws, 26-inch and smaller. The No. 2 is for use on larger band saws, 32-inch and larger.

	No. 1	No. 2
Height of main roller.....	7 inches	10 inches
Number of small rollers.....	Two	Three
Length of Fence.....	18 inches	24 inches
Shipping weight, boxed .....	60 pounds	100 pounds
Price .....	\$40.00	\$47.00

## Shaper Fence

This Shaper Fence can be attached to any make of shaper, single or double spindle, by drilling and tapping a few holes in the shaper table. It makes a very useful attachment for edging and straightening up lumber, for working casing, light moldings, or other similar work. It is made in two sections bolted together through slotted holes, to adjust for light or heavy cut. The rear part is to be set flush with the cutting line of the knife, while the front part is to be set over for desired depth of cut, on same principal as the tables of a jointer. When bolts are tightened, both parts are rigid and exactly parallel with each other, insuring accurate work. One spring is furnished to hold the work down on the table, and another to hold the work against the fence.



Length .....	36 inches
Weight, Boxed .....	65 pounds
Price .....	\$30.00

## Round Safety Cylinder Heads



THIN KNIFE JOINTER HEAD

Everyone knows the danger of running a Buzz Planer or Jointer with the old style square head. It is a common thing to see the operators of these machines with mutilated hands. With the Safety Circular Heads, these machines are no longer dangerous. The circular form of the cylinder gives a smooth surface and closely fills the openings between the two tables so that it is impossible to get the fingers down below the surface of the table or injure the operator severely. Novelty knives can be attached to these heads.

## Stutzman Patented Round Safety Cylinder Heads (WITHOUT KNIVES)

Cutting Head	2-Knife	4-Knife	Cutting Head	2-Knife	4-Knife
3-inch .....	\$30.00	\$42.00	14-inch .....	\$53.00	\$70.00
4-inch .....	31.00	48.00	16-inch .....	58.00	78.00
6-inch .....	36.00	52.00	18-inch .....	60.00	84.00
8-inch .....	38.00	54.00	20-inch .....	64.00	90.00
10-inch .....	43.00	60.00	24-inch .....	72.00	96.00
12-inch .....	50.00	66.00			

## Knives Extra

Price of a 3-knife head same as a 4-knife head.

Heads not listed above, prices quoted on application.

The above prices are for heads up to and including 4-inch cutting circle, for each additional  $\frac{1}{4}$ -inch we charge \$1.25.

Pulleys, \$6.00 extra; Rablating Spurs, \$4.00 extra; Slotting a 2-knife head, \$6.00 extra. See page 68 for price on high speed steel knives.

## Make Your Square Heads Round and Safe — with Caps

Send us your square cutterheads and we will return them each one fitted with two or four thin steel knives and with suitable, accurate-fitting caps which make the head round to conform with modern safety requirements.

**Making square jointer head into round safety head for two knives.**

8-in. head for 2 knives, \$22.00	18-in. head for 2 knives, \$38.00
12-in. head for 2 knives, 30.00	20-in. head for 2 knives, 42.00
16-in. head for 2 knives, 35.00	24-in. head for 2 knives, 48.00

**High-speed knives, extra per inch 25 cents.**

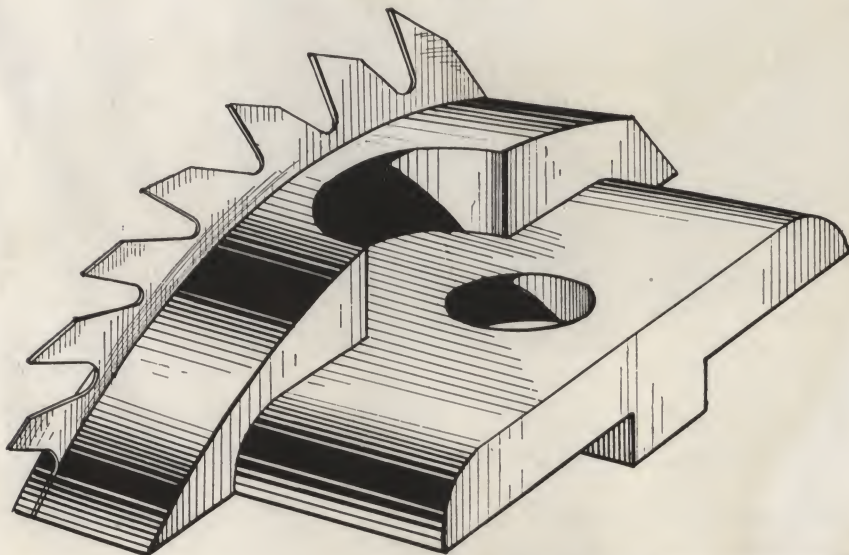
For four-knife heads, add 50 percent.

**PROMPT SERVICE:** Shipment made 3 days to 1 week after receipt of old head.

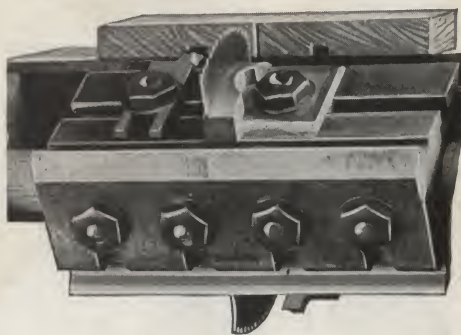


## SHUFF PATENT

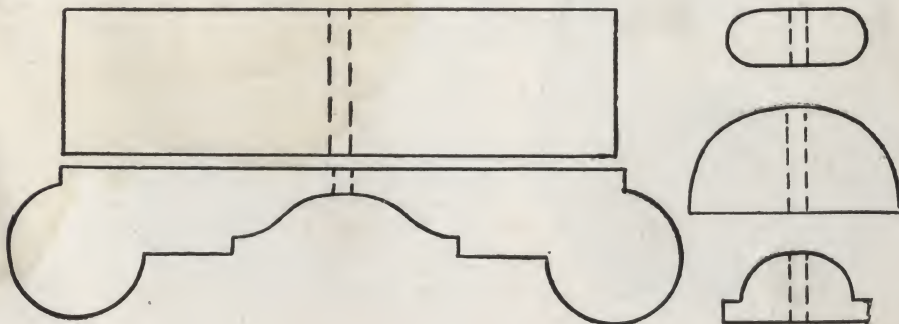
Sticker Saw Head



Used for splitting moulding when two or more are run at the same time. Cuts smoothly and can be set up easily. Is a decided improvement over the flat knives used for this purpose. Also used for rabbeting and grooving. When ordering, send sketch of end view of sticker head so that proper cutting circle is determined. Show distance from slot in head to lip and state through what thickness of lumber head is to cut.

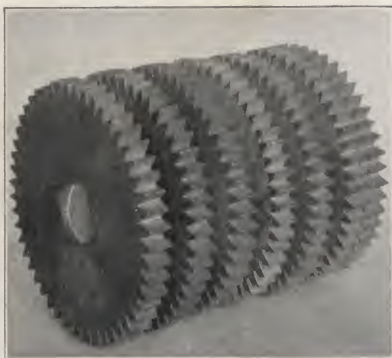


Price, per pair, complete, with saws.....\$30.00



## Sectional Feeds for Sticker

Tempered Tool Steel Can Be Sharpened on Emery Wheel



Thickness	DIAMETER					
	2½	3	3½	4	4½	5
5/16	\$2.80	\$3.50	\$4.30	\$5.00	\$5.25	\$6.50
3/8	3.30	4.00	4.80	5.50	6.00	7.50
1/2	3.60	4.50	5.30	6.00	6.80	7.50

The above prices include dividers.



## Micrometer Knife-Setting Gage

The device illustrated by the drawing herewith is a gage for setting knives in round cutterheads so that they will cut accurately to the concentric contour of the head. The gage is made entirely of tool steel and hardened. The part which comes in contact with the head carries the feeler-finger for indicating the position or relation of knives to one another through the dial at the top of the gage. The pointer on this dial registers accurately to 1/10,000-in. Midway between the dial and base of the gage there is an adjusting knurled thumbnut to set the feeler-finger the distance from body of head desired. This allows regulation of the gage to any knife projection desired.

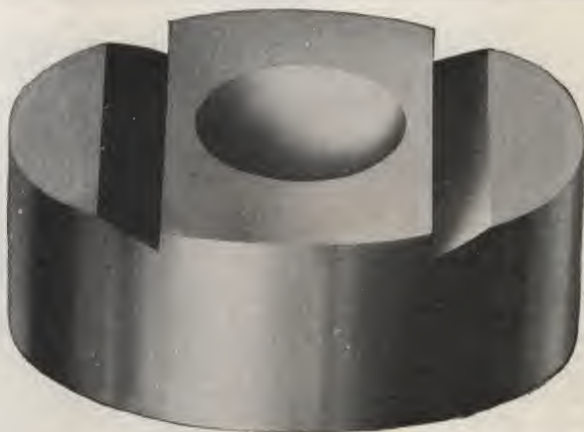
This gage has proved to be very satisfactory wherever it has been used. The greater accuracy obtained in knife-setting produces smoother machine work. The use of the gage permits the set-up man to set the knives in a round head so that every knife will cut alike, and as a result knife marks are spaced uniformly along the planed surface.

Price, each .....\$26.00



## Shaper Collar

Prices per  
Set of Four



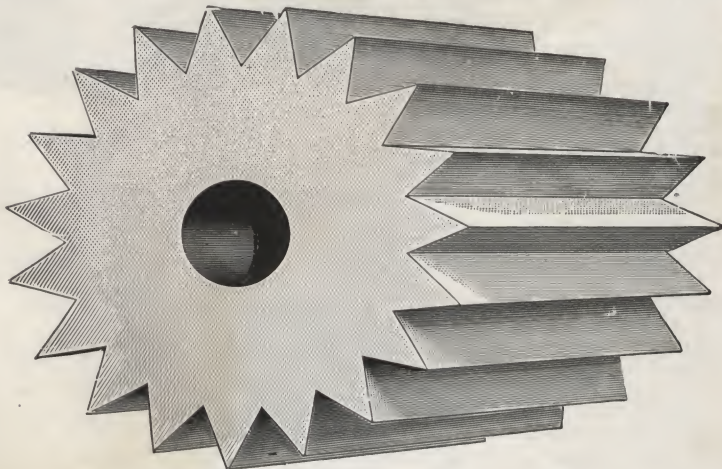
1 1/4 in. Diameter .....	\$11.00	2 1/2 in. Diameter .....	\$16.00
1 1/2 in. Diameter .....	12.00	3 in. Diameter .....	18.00
1 3/4 in. Diameter .....	13.00	3 1/2 in. Diameter .....	21.00
2 in. Diameter .....	14.00	4 in. Diameter .....	24.00

These Collars are made with great care. The grooves are milled perfectly parallel and top and bottom always correspond. When ordering, send size of Shaper Spindle.

### SAW FEEDS

Saw Feeds 1/8" thick, 4" dia...\$1.50 1/8" thick, 6" dia...\$2.00 1/8" thick, 8" dia...\$2.50

## Solid Steel Rolls for Sticker



### GRAY IRON

Width .....inches	2 1/2	3	3 1/2	4	5	6	7	8	9	10
Diameter .....inches	2 1/2	3	3	3	3 1/2	3 1/2	3 1/2	4	4	4
Price.....each	\$4.80	\$5.25	\$6.30	\$7.25	\$9.50	\$11.00	\$13.00	\$14.50	\$18.00	\$20.50

### MACHINERY STEEL

Width .....inches	2 1/2	3	3 1/2	4	5	6	7	8	9	10
Diameter .....inches	2 1/2	3	3	3	3 1/2	3 1/2	3 1/2	4	4	4
Price.....each	\$6.00	\$7.00	\$8.00	\$9.50	\$13.50	\$15.00	\$17.50	\$20.00	\$22.00	\$24.00

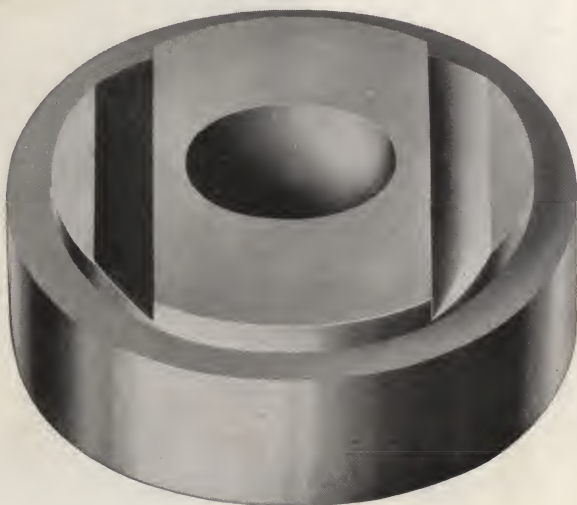
When ordering, give correct size of hole, diameter and width, also state if key seat or set screw is wanted.

## Knourek Patent Ball-Bearing Shaper Guide Collars

Patented U. S., Feb. 15, 1921. Canada,  
Aug. 24, 1920.

The outer shell of this ball-bearing collar is free from the slotted collar proper and can revolve independent of it when pattern or stock comes in contact with it. It rolls along with the feed of the work. No friction between collar and work so the edge surface is neither burned or worn down. Every shaperman knows the effect of friction on stock being run and will appreciate these shaper collars. Save your patterns, stop spoilage of stock and enable your operator to do more work by using these new ball-bearing shaper collars. Give them an actual trial in your own plant.

Ball-bearing shaper guide collars are made with groove as shown, for flat knives, and without groove for solid steel cutters.



### PRICE, EACH

Grooved collars .....	\$35.00
Solid collars to match ball-bearing collars .....	4.50

### STANDARD SIES

Collars with	$\frac{5}{8}$ "	holes are made	2"	diameter or larger.
"	$\frac{3}{4}$ "	"	"	"
"	$\frac{7}{8}$ "	"	"	"
"	1"	"	"	"
"	$1\frac{1}{16}$ "	"	"	"
"	$1\frac{1}{8}$ "	"	"	"
"	$1\frac{3}{16}$ "	"	"	"
"	$1\frac{1}{4}$ "	"	"	"
"	$1\frac{5}{16}$ "	"	"	"
"	$1\frac{3}{8}$ "	"	"	"
"	$1\frac{7}{16}$ "	"	"	"
"	$1\frac{1}{2}$ "	"	"	"
"	$1\frac{9}{16}$ "	"	"	"
"	$1\frac{5}{8}$ "	"	"	"
"	$1\frac{3}{4}$ "	"	"	"
"	2"	"	"	"

When ordering state diameter of Collars wanted and size of holes.

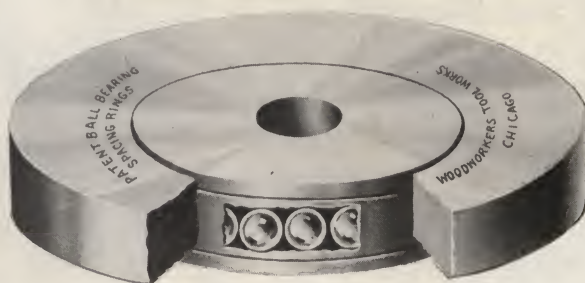


## Patent Ball-Bearing Spacing Rings

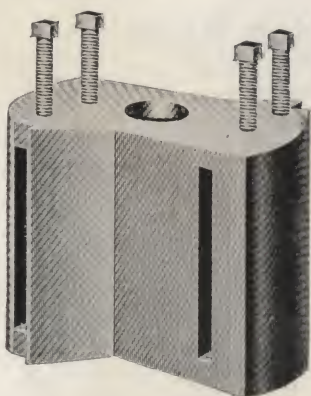
### Grooveless

With interchangeable outside collars. This well constructed spacing guide collar is extremely durable, absolutely dust proof and made with great care.

The outside rings for varying depths of work are interchangeable. These collars are used in connection with solid steel cutters, groove saws and other shaper tools, while our slotted collars are used with flat shaper knives.



Collar No.	Size Hole	Outside Diameter	Price, Each complete with one interchangeable collar	Diameter of Interchangeable collar	Price of Extra Interchangeable collar
21	$\frac{1}{2}$ "	$2\frac{7}{16}$ "	\$26.00	$2\frac{3}{4}$ "	\$3.25 for dia. up to 4"
23	$\frac{5}{8}$ "	$2\frac{7}{16}$ "	26.00	$2\frac{3}{4}$ "	3.25 for dia. up to 4"
25	$\frac{3}{4}$ "	$2\frac{7}{16}$ "	26.00	$2\frac{3}{4}$ "	3.50 for dia. up to 4"
27	$\frac{7}{8}$ "	$2\frac{7}{16}$ "	28.00	$2\frac{3}{4}$ "	3.50 for dia. up to 4"
29	1"	$2\frac{7}{16}$ "	28.00	$2\frac{3}{4}$ "	3.75 for dia. up to $4\frac{1}{2}$ "
31	$1\frac{1}{8}$ "	$2\frac{7}{16}$ "	28.00	$2\frac{3}{4}$ "	3.75 for dia. up to 5"
33	$1\frac{3}{16}$ "	$3\frac{5}{32}$ "	30.00	$3\frac{11}{32}$ "	4.00 for dia. up to $5\frac{1}{2}$ "
35	$1\frac{1}{4}$ "	$3\frac{5}{32}$ "	30.00	$3\frac{11}{32}$ "	4.00 for dia. up to $5\frac{1}{2}$ "
37	$1\frac{5}{16}$ "	$3\frac{5}{32}$ "	30.00	$3\frac{11}{32}$ "	6.00 for dia. up to $5\frac{1}{2}$ "
39	$1\frac{3}{8}$ "	$3\frac{5}{32}$ "	32.00	$3\frac{21}{32}$ "	6.00 for dia. up to $5\frac{1}{2}$ "
41	$1\frac{1}{2}$ "	$3\frac{5}{32}$ "	32.00	$3\frac{21}{32}$ "	6.00 for dia. up to 6"
43	$1\frac{5}{8}$ "	$3\frac{5}{32}$ "	32.00	$3\frac{21}{32}$ "	8.00 for dia. up to 6"
45	$1\frac{3}{4}$ "	$3\frac{5}{32}$ "	32.00	$3\frac{21}{32}$ "	8.00 for dia. up to 6"



### Mortise or Matcher Head

Suited for a lot of Sticker work. Takes in bits up to 3 inches wide and  $\frac{1}{4}$ ,  $\frac{5}{16}$  or  $\frac{3}{8}$  inches thick. When ordering give size of bore and cutting circle.

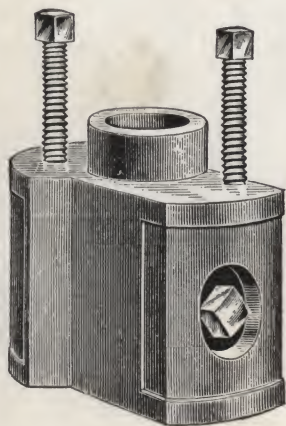
Net price.....\$25.00

### Sash and Door Head

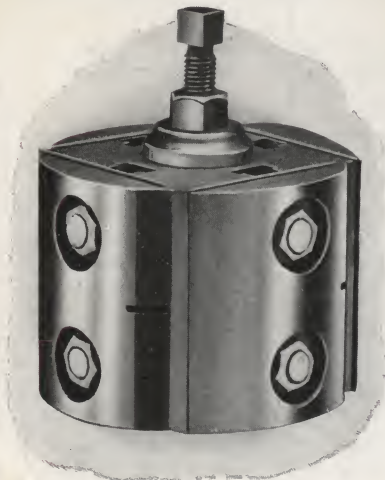
It will pay to keep a number of these heads set up for a certain shape and size of door and sash moulding, so they are always ready and you do not have to change the bits.

Price net.....\$25.00

When ordering give size of bore and cutting circle.

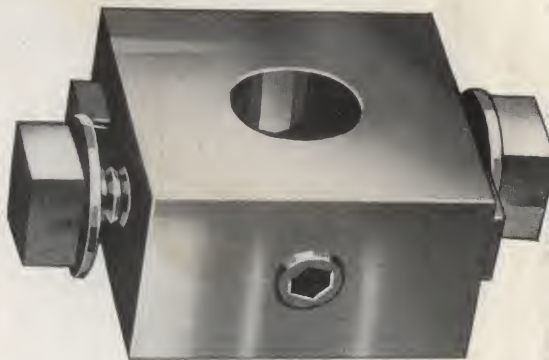


### Side Cutter Heads for Moulders and P. & M.



Prices upon application.

### Cope Heads



Price, each.....\$6.50

Send all dimensions.

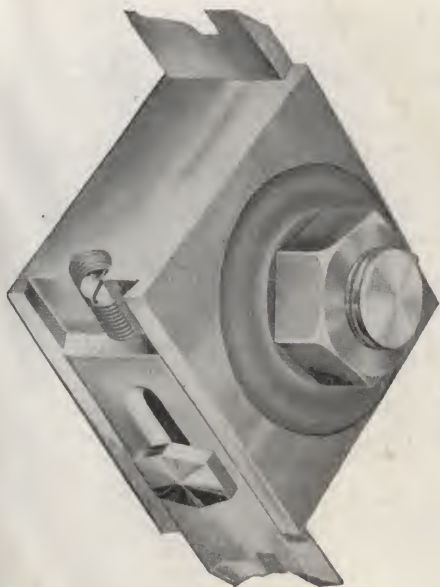


## No. 9 Arbor Cutter Head

Used for Jointing and Sticking  
Mouldings on Saw Table

The above Cutter Head is manufactured from steel and can be used on any ordinary saw mandrel. The knives are adjusted to a gauge by the use of headless set screws and securely fastened by hexagon head bolt. The regular head is manufactured so that the cutting edge of the knife is  $2\frac{1}{4}$  inches wide.

When space on mandrel will not take a head  $2\frac{1}{4}$  inches thick, we can counterbore as thin as one inch. When counterbored, it will be necessary to give the diameter of collars on saw mandrel.



## Special Knives For Cutter Heads



Special Knives for  
Window Sash



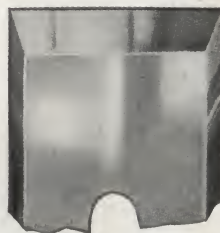
Concave Faced Knives  
for Joining Threads



Special Knives for  
Window Stops



One-fourth Round Knives  
for Cutting Cove Moulding



Square Faced Knives  
for Jointing

## OTHER MOULDING SHAPES ON PAGES

74 TO 78

We also manufacture knives to fit regular size head to be used for matching, panel raising and sticking regular or special mouldings.

When the space between the tight and loose collars will not accommodate a head two inches wide our head can be counter-bored to one inch. When this is done it is necessary for us to know the diameter of the tight and loose collars on mandrel.

Extra wide cutter heads and knives for same made to order. Send sketch or sample of mouldings to be cut.

Arbor Cutter Head, $4\frac{1}{2}$ " square or less; $2\frac{1}{2}$ " thick or less	\$34.00
2" tempered blank Knives, $\frac{1}{4}$ " thick. Each	.72
3" tempered blank Knives, $\frac{1}{4}$ " thick. Each	1.08
2" finished to pattern Knives, $\frac{1}{4}$ " thick. Each	3.20
3" finished to pattern Knives, $\frac{1}{4}$ " thick. Each	4.80

## No. 19 Arbor Moulding Heads



**S**UITABLE for use on any machine arbors or spindles, and particularly adaptable to short order and special work of great variety.

These heads are accurately machined, carefully balanced and designed to carry two slotted knives. Their simplicity of design makes them easy to set up or change for the many odd jobs that can be handled on variety saws, jointers, shapers, etc.

### High Grade Heads at These Low Prices!

Head 2" thick or less, 6" dia. or less \$15.00  
 Head 3" thick or less, 6" dia. or less 22.00  
 Head 2" thick or less, 8" dia. or less 18.00  
 Head 3" thick or less, 8" dia. or less 28.00

Complete with bolts and 2 square knives. Other sizes to order. Heads can be boxed out on either side to fit short saw arbors.

each  
 2" tempered blanks knives,  $\frac{1}{4}$ " thick, \$0.72  
 3" tempered blanks knives,  $\frac{1}{4}$ " thick, 1.08  
 2" finished to pat. knives,  $\frac{1}{4}$ " thick, \$3.20  
 3" finished to pat. knives,  $\frac{1}{4}$ " thick, 4.80

## No. 29 Safety Moulding Head



These heads are used for same purpose as our No. 9 and No. 19 heads. Being circular in shape there is less chance for operator being hurt.

### PRICES

Head 2" thick or less, 6" dia. or less. \$35.00

Head 3" thick or less, 6" dia. or less. \$42.00

Head 2" thick or less, 8" dia. or less. \$45.00

Head 3" thick or less, 8" dia. or less. \$55.00

Complete with bolts and 2 square knives. Extra knives are priced as those for No. 19 head listed above.

Heads Nos. 9, 19 and 29 are made to order only and not subject to return.



# Philbrick Cutter Heads

Fig. 1—Philbrick 16-bit Flooring Head. We furnish flooring heads with from 2 to 32 cutters to the head, to work any kind of lumber and to fit any make of machine running at any rate of feed. Note the Philbrick bit holders carrying the groove cutters on above head.

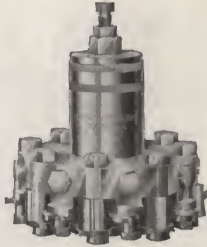


Fig. 2.—Philbrick 6-bit Shiplap Head. Shiplap heads of above type are made with any number of cutters up to 14 depending upon machine and rate of feed required. They are made to work up to 2 1/4" thick shiplap.

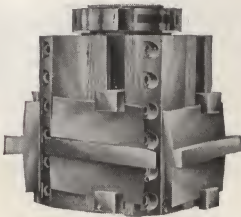
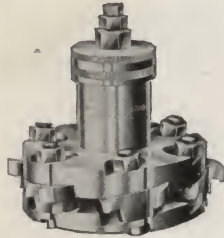


Fig. 3—Philbrick 6" 4-knife Universal Moulding Head. This type of head is made in any length up to 12" and with either four or six sides. Milled to pattern cutters are fastened to the faces of these heads with Philbrick patent clamps which are longitudinally adjustable the full length of the head. The head is reversible and will work on all four sides of a moulder with a change of self centering sleeves.



Fig. 4—Philbrick 8-bit Quarter Round Slip-on Head. The generated type of knives is used in this head, which enjoys the reversible feature possessed by Figs. 3, 5 and 6. The cut can be staggered as shown or the slots may be set in line and long knives used.

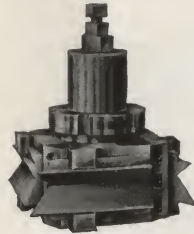


Fig. 5—Philbrick 4-knife Universal Moulding Head. This head is set to work the bevel on crown moulding and such patterns. The disc is removable from the self centering sleeve and can be used on all four spindles of the moulder. Other shapes of milled to pattern knives or corrugated steel ground to pattern may be used.

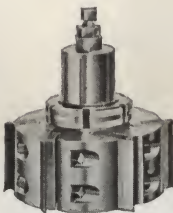
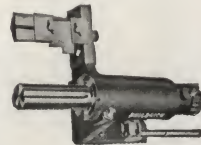


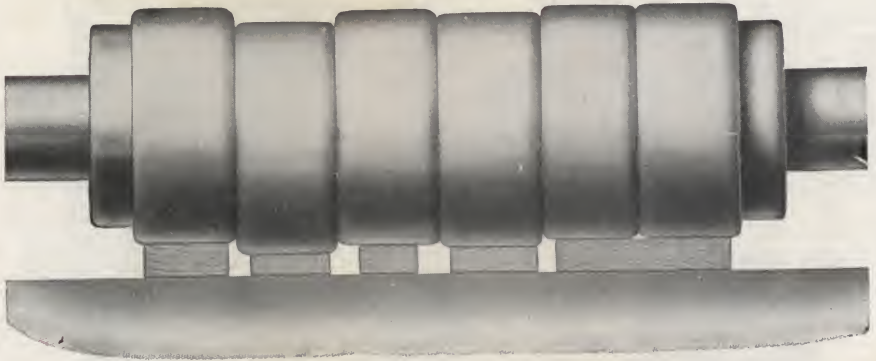
Fig. 6—Philbrick 3" 6-knife Jointer Head. This is a 6-knife disc mounted on a Philbrick Universal self centering side head sleeve. Like all the moulding discs of this line this can be self centered to fit spindles up to 2 3/16" diameter.

Fig. 7—Philbrick Cutter Head Setting Stand. This stand is used for tracking cutters on any make of head so that they will make the exact pattern required before they are put on the machine. Arbors for different bores of heads can be furnished and they are easily substituted one for the other. This machine can be furnished to handle heads up to 12" long and is made in several sizes.



## "The Green Bay" Sectional Feed Roll for Planers, Sanders, Etc.

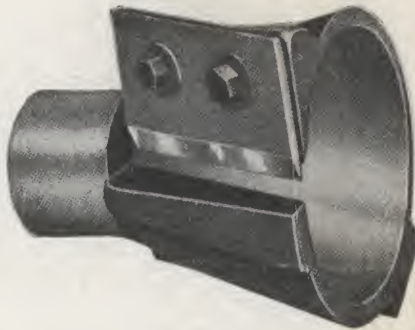
**FLEXIBLE BUT POSITIVE**



The need of a better sectional feed roll for planers, sanders, etc., is well known to mill men, and in offering to the trade the "Green Bay" roll we firmly believe that this need has been filled.

Send drawing of roll that is to be replaced and we will quote prices.

## Waymoth Snipper



The above cut represents a snipper such as is used to take the corners off of the stock before it is put into wood-turning lathes and other work. Every user of a Variety Lathe should have one or more of these snippers.

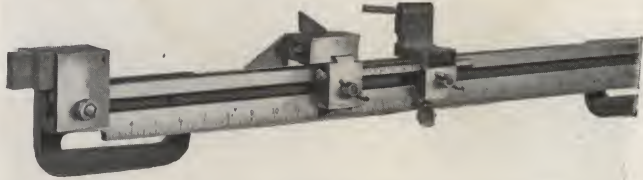
When ordering send sample of work you wish to do and size of shank wanted.

Small size with opening $\frac{1}{2}$ " to $3\frac{1}{2}$ ".....	\$22.50
Large size with opening $1\frac{3}{4}$ " to $5\frac{1}{2}$ ".....	28.00



## Adjustable Tenoner Gauge

The Solem Tenoner Gauge has been designed to eliminate the lay-out work required before the Tenon Machine can be set up, also to save time in setting the machine itself and avoid errors. Anyone who can read a common rule can operate the Gauge.



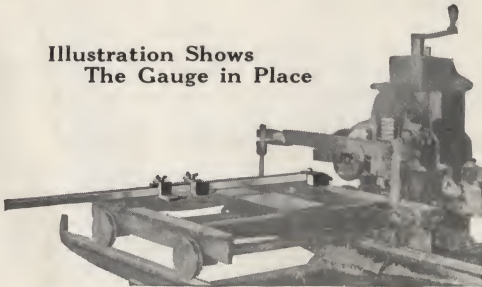
The Gauge and Fence have been combined into one unit, therefore when the Gauge is applied to Tenoner the present fence is dispensed with and the Gauge put in its place, using the same bolts which are now on the machine.

The illustration above shows the Gauge set for 12 inch between shoulders and with the tenon itself 3 inches long. Loosen the upper nuts with the fingers and slide the stops along the rail to any other desired length between shoulders; it is not necessary to change the rear stop if the same length of tenon is wanted. If tenon length is to be changed simply loosen both wing nuts on rear stop carriage and position it to the length wanted on short scale.

The graduations are machine cut and very accurate, therefore it is only necessary to have the indicators on the dimension wanted. Both scales being in plain sight of the operator, error in set-up is avoided and it is not necessary to cut and try for any desired dimension.

The SOLEM Tenon Machine Gauge is made in the following standard sizes: 48 in., 54 in., and 60 in. A 24 in. extension to any of these standard Gauges can be furnished at an extra charge. This extension is so made that it can be detached in a moment and is used only for extremely long rails, etc.

**Illustration Shows  
The Gauge in Place**



You lay out no more work.  
No cutting and trying is needed.  
The set-up is positive, accurate and instant.  
Wrench and screwdriver is not used.  
Bowed rails are cut parallel.  
No variation in length between shoulders or tenons.  
No nails or screws to waste time with.  
Your frame work will clamp up square.

**Applied to Any Single End Tenoner in  
Very Few Minutes.**

### PRICES:

48"	\$50.00
54"	55.00
60"	60.00
A 2 ft. Extension for above.....	\$15.00

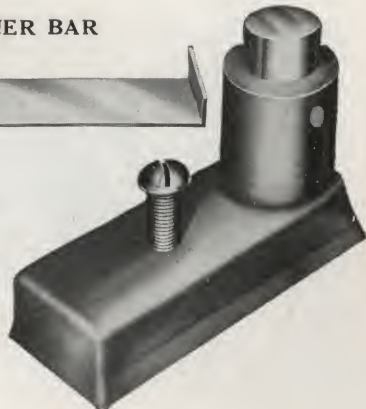
### STOPS FOR DOVETAILED TENONER BAR

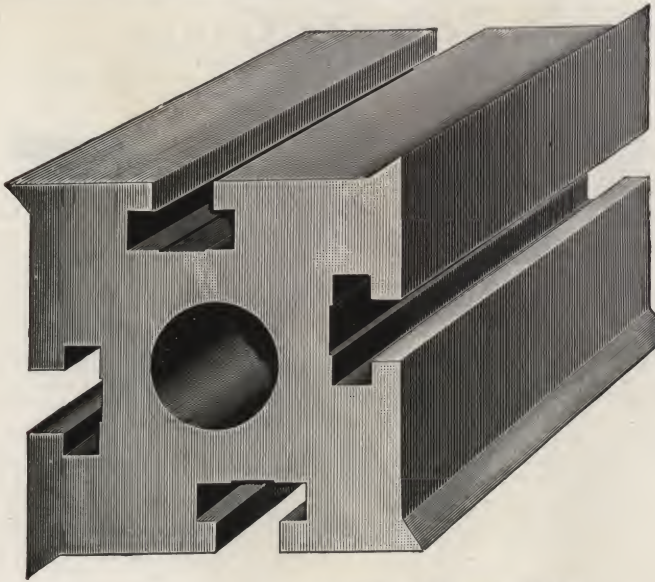


**Dovetail Tenoner Bar,  
Price, per ft.....\$4.00**

**Spring Stops for  
Tenoners,  
Price \$3.50**

**Bob up Stops,  
Price, \$3.50**





## Mild Steel Sticker Heads

For All Machines.  
Made up at Once. If  
Special Lip is De-  
sired, You Are Re-  
quired to Send  
Sketches

### Prices of Sticker Heads

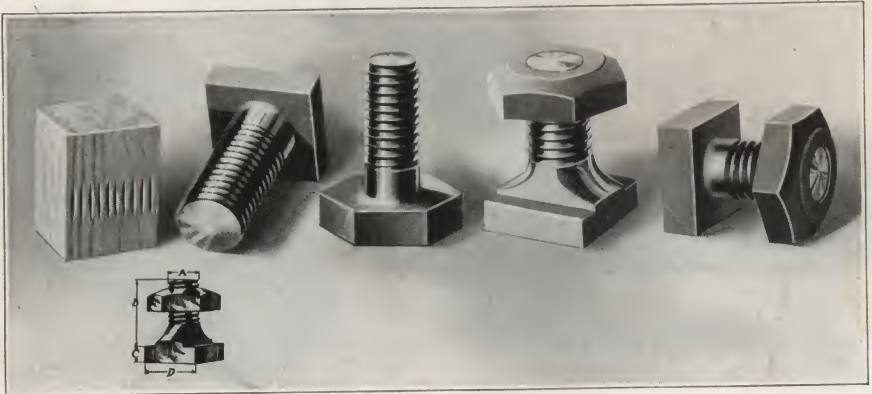
2" four slotted heads.....	\$16.00	8" four slotted heads.....	32.00
3" four slotted heads.....	16.00	10" four slotted heads.....	40.00
4" four slotted heads.....	16.00	12" four slotted heads.....	48.00
6" four slotted heads.....	24.00	Self centering heads, extra	\$15.00

## Special Planer Jointer and Cylinder Bolts

For All Machines

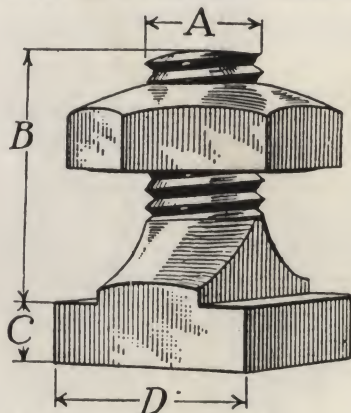
We can furnish all kinds of special bolts and screw machine products promptly and at reasonable prices. Send sample or correct size with order. When ordering sticker bolts, give size A, B, C, D, and state whether common or reinforced. Send old sample of cylinder bolts or give all dimensions and impression of thread in piece of soft wood. See illustration.

Special cylinder bolts in lots of  
1 to 6—each....\$1.00      6 to 12—each....0.90      12 to 24—each....0.80





## Reinforced Sticker Head Bolts



Full Size  $\frac{5}{8}$  Bolt

The Bolt that never breaks at the base. Our bolts are made of the toughest bolt steel obtainable. They have a base that never bends and prevents breaking off at the head. U. S. standard threads.

The nuts are case hardened and heavier through center so as to have more wearing surface and not break the threads.

Stock	Bolt	Head	Hex. Nut
No. A	$\frac{11}{16} \times 1\frac{1}{2}$	$\frac{3}{8} \times 1\frac{1}{8}$	$\frac{7}{16} \times 1\frac{1}{4}$
No. C	$\frac{11}{16} \times 1\frac{1}{2}$	$\frac{3}{8} \times 1\frac{1}{16}$	$\frac{1}{2} \times 1\frac{1}{8}$
No. 1	$\frac{11}{16} \times 1\frac{1}{2}$	$\frac{5}{16} \times 1\frac{1}{4}$	$\frac{7}{16} \times 1\frac{1}{4}$
No. B	$\frac{5}{8} \times 1\frac{3}{8}$	$\frac{5}{16} \times 1\frac{1}{8}$	$\frac{7}{16} \times 1\frac{1}{4}$
No. 2	$\frac{5}{8} \times 1\frac{3}{8}$	$\frac{5}{16} \times 1\frac{1}{16}$	$\frac{7}{16} \times 1\frac{1}{4}$
No. 3	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{5}{16} \times 1\frac{1}{16}$	$\frac{7}{16} \times 1\frac{1}{4}$
No. 4	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{5}{16} \times 1\frac{15}{16}$	$\frac{7}{16} \times 1\frac{1}{4}$
No. 5	$\frac{9}{16} \times 1\frac{1}{2}$	$\frac{5}{16} \times 1\frac{15}{16}$	$\frac{7}{16} \times 1\frac{1}{16}$
No. 6	$\frac{9}{16} \times 1\frac{1}{4}$	$\frac{5}{16} \times 1\frac{15}{16}$	$\frac{7}{16} \times 1\frac{1}{16}$
No. 7	$\frac{1}{2} \times 1\frac{1}{2}$	$\frac{9}{32} \times \frac{7}{8}$	$\frac{13}{32} \times 1\frac{1}{16}$
No. 8	$\frac{1}{2} \times 1\frac{1}{4}$	$\frac{9}{32} \times \frac{7}{8}$	$\frac{13}{32} \times 1\frac{1}{16}$
No. 9	$\frac{1}{2} \times 1\frac{1}{4}$	$\frac{9}{32} \times \frac{3}{4}$	$\frac{13}{32} \times 1\frac{1}{16}$

Bolts $\frac{1}{2}$ in. Diameter.....	\$0.40 each
Bolts $\frac{9}{16}$ in. Diameter.....	.45 each
Bolts $\frac{5}{8}$ in. Diameter.....	.50 each
Bolts $\frac{11}{16}$ in. Diameter.....	.60 each

## New Sticker Bolts and Nuts

Heat Treated and Made from Specially Selected Steel

**GUARANTEED FIVE YEARS AGAINST WEAR OR BREAKAGE**

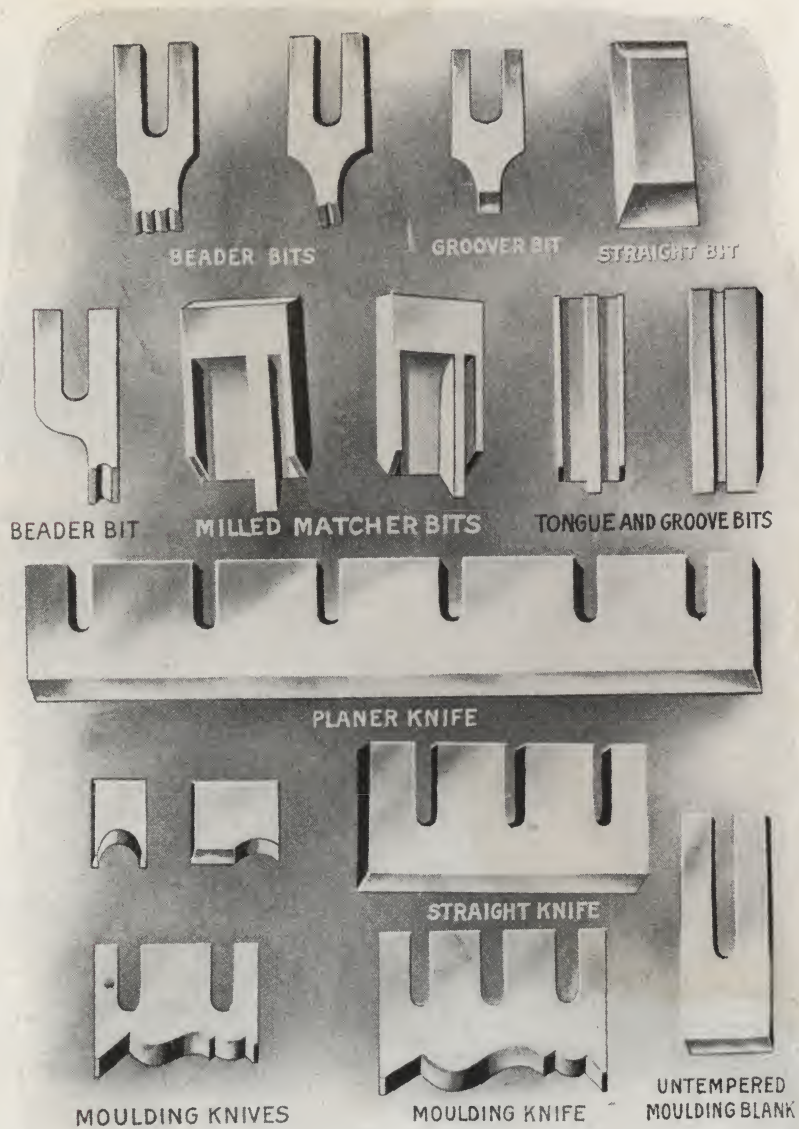
These bolts and nuts are positively the best ever made, and while they cost a little more than ordinary bolts, their first cost is the last cost.

The standard size  $\frac{1}{2}$ -inch and  $\frac{5}{8}$ -inch bolts and nuts are \$1.25 each.

All special bolts in small lots of 6 to 12 are \$2.00 each. Ask for quotation on larger quantities.

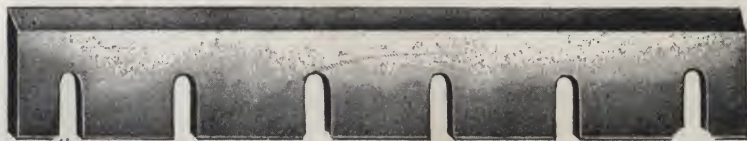
We can also furnish these new bolts for tapped planer cylinders in a few standard sizes for Buss and Whitney machines. Price each.....\$1.00

## Knives





## Planing Machine Knives



Knives over 12 inches to 31 inches long, 4 inches wide or less,  $\frac{3}{8}$  inch thick or less, 42c per inch.

In ordering Planing Knives, etc., place the knife face down on a piece of blank paper, mark around to show the length of knife, and size and position of slots, and be sure to state the width and thickness, and number of knives in a set. Also state for what duty, if for hard or soft wood.

## OVER 12 INCHES LONG

	4 inches wide or less		Over 4 to 4½ inches wide	
	$\frac{3}{8}$ in. thick or less	Over $\frac{3}{8}$ in. to $\frac{7}{16}$ in.	$\frac{3}{8}$ in. thick or less	Over $\frac{3}{8}$ in. to $\frac{7}{16}$ in.
12½ in. ....	\$ 5.25	\$ 5.78	\$ 6.00	\$ 6.60
13 in. ....	5.46	6.01	6.24	6.86
13½ in. ....	5.67	6.24	6.48	7.13
14 in. ....	5.88	6.47	6.72	7.39
14½ in. ....	6.09	6.70	6.96	7.66
15 in. ....	6.30	6.93	7.20	7.92
15½ in. ....	6.51	7.16	7.44	8.18
16 in. ....	6.72	7.39	7.68	8.45
16½ in. ....	6.93	7.62	7.92	8.71
17 in. ....	7.14	7.85	8.16	8.98
17½ in. ....	7.35	8.09	8.40	9.24
18 in. ....	7.56	8.32	8.64	9.50
18½ in. ....	7.77	8.55	8.88	9.77
19 in. ....	7.98	8.78	9.12	10.03
19½ in. ....	8.19	9.01	9.36	10.30
20 in. ....	8.40	9.24	9.60	10.56
20½ in. ....	8.61	9.47	9.84	10.82
21 in. ....	8.82	9.70	10.08	11.09
21½ in. ....	9.03	9.93	10.32	11.35
22 in. ....	9.24	10.16	10.56	11.62
22½ in. ....	9.45	10.40	10.80	11.88
23 in. ....	9.66	10.63	11.04	12.14
23½ in. ....	9.87	10.86	11.28	12.41
24 in. ....	10.08	11.09	11.52	12.67
24½ in. ....	10.29	11.32	11.76	12.94
25 in. ....	10.50	11.55	12.00	13.20
25½ in. ....	10.71	11.78	12.24	13.46
26 in. ....	10.92	12.01	12.48	13.73
26½ in. ....	11.13	12.24	12.72	13.99
27 in. ....	11.34	12.47	12.96	14.29
27½ in. ....	11.55	12.71	13.20	14.52
28 in. ....	11.76	12.94	13.44	14.78
28½ in. ....	11.97	13.17	13.68	15.05
29 in. ....	12.18	13.40	13.92	15.31
29½ in. ....	12.39	13.63	14.16	15.58
30 in. ....	12.60	13.86	14.40	15.84
30½ in. ....	12.81	14.09	14.64	16.10
31 in. ....	13.02	14.32	14.88	16.37
31½ in. ....	15.12	16.63	17.64	19.40

## STRAIGHT KNIVES, 12 inches long or less

4 inches wide or less— $\frac{3}{8}$  inch thick or less.

2 inches long or less .....	\$2.00 each
Over 2 to 4 inches long .....	2.40 each
Over 4 to 6 inches long .....	3.00 each
Over 6 to 12 inches long .....	.48c per in...

If over 4 inches wide increase  $\frac{1}{6}$  for each additional inch or fraction thereof.

If over 4 to 5 inches wide increase  $\frac{1}{6}$  for each additional inch or fraction thereof.

If over 5 inches wide figure by Planer Knife List.

Add 50% for knives plated all over one face.

Counterbored slots add 10%.

Beveled ends, add 30 cents per knife.

Advance for extra thickness.

# KNIFE BLANKS

For Mattison, Yates and American Turning Machines



(For either T-Slot  
or Dove-Tail  
Type)

Forged and Slot-  
ted but not  
Ground or Tem-  
pered;  $\frac{1}{4}$ " Thick  
Steel

Width of Cut- ting edge	Length					
	3 to 3½"		3¾ to 4"		4¼ to 4½"	
	Carbon Steel	High Speed Steel	Carbon Steel	High Speed Steel	Carbon Steel	High Speed Steel
1½"	\$0.40	\$1.10	\$0.45	\$1.25	\$0.50	\$1.40
1¾"	.45	1.20	.50	1.35	.55	1.50
2"	.50	1.30	.55	1.45	.60	1.60
2½"	.55	1.50	.60	1.65	.65	1.80
3"	.60	1.75	.65	1.90	.75	2.05
3½"	.65	2.00	.75	2.15	.85	2.30
4"	.75	2.25	.80	2.40	.90	2.55
4½"	.85	2.50	.90	2.65	.95	2.80
5"	.90	2.75	1.00	2.90	1.10	3.05
5½"	1.05	3.00	1.15	3.15	1.25	3.30
6"	1.15	3.30	1.25	3.45	1.40	3.60
6½"	1.25	3.60	1.40	3.75	1.50	3.90
7"	1.35	.....	1.50	.....	1.65	.....
8"	1.55	.....	1.65	.....	1.75	.....

## TENONING KNIVES



COPING  
KNIVES

When ordering, please send correct pattern and state name and number of machine.

Price, Tenoning Knives, each. .... \$4.50

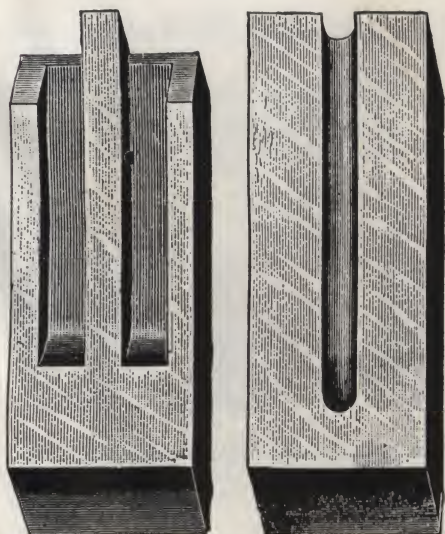
O. G. Knives, Cope Knives, each. .... \$3.60

P. G. Blanks, Cope Knives, each. .... 2.00

Finished to Pattern, Cope Knives, each. .... 4.00

When over 5/16 inch thick, advance 10 per cent.





## Matcher Bits

### SOLID STEEL MILLED FACE

Size of T and G	Width of Cutter	Price Each
$\frac{1}{8}$ – $\frac{3}{16}$ .....	1 in. to $1\frac{1}{4}$ in....	\$4.50
$\frac{1}{4}$ – $\frac{5}{16}$ .....	$1\frac{3}{8}$ in. to $1\frac{5}{8}$ in....	4.50
$\frac{3}{8}$ – $\frac{7}{16}$ .....	$1\frac{3}{4}$ in. to $2\frac{1}{4}$ in....	4.50
$\frac{1}{2}$ – $\frac{9}{16}$ .....	$2\frac{3}{8}$ in. to $2\frac{3}{4}$ in....	6.00
$\frac{5}{8}$ .....	3 in. to $3\frac{1}{2}$ in....	6.00

Over  $\frac{3}{8}$  in. thick or 4 in. long, advance  
20 per cent.

Also made with slots for Sticker Heads.

## Automatic Lathe and Dowell Machine Knives

Of Carbon and High Speed Steel



Send for samples or drawings for quotations.

## Spur or Side Cutters

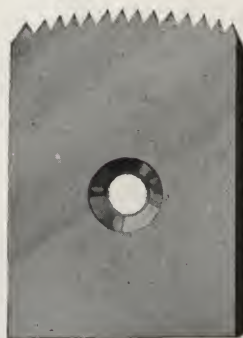
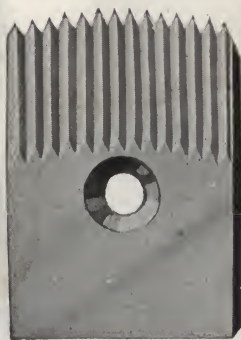
For Tenoning Machine or  
Dado Head

### CORRUGATED

Per set of 4...\$7.68

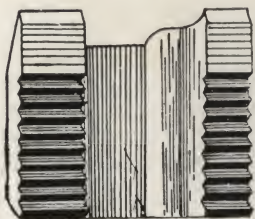
### PLAIN FACE

Per set of 4...\$4.00

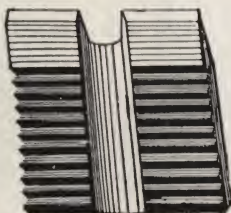


## High Speed Steel Corrugated Knives and Blanks

When ordering, mention style wanted, name of machine used on, all dimensions of knives, head to be used on and send sketch of moulding you wish to cut.



No. 1



No. 2



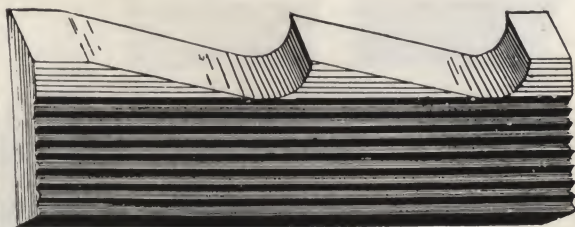
No. 3



No. 4

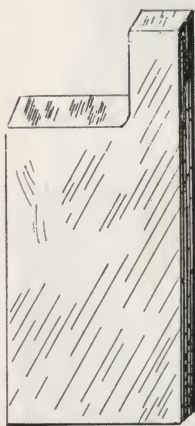


No. 5

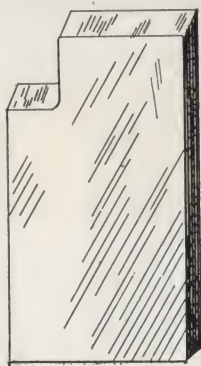


No. 6

Prices on Application



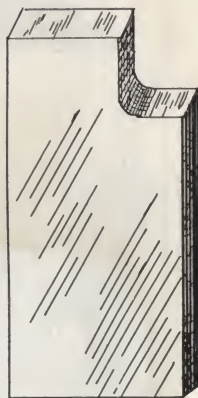
No. 7



No. 8



No. 9



No. 10

Prices on Application



**Moulding Machine Gauges****Crank Handles**

Send pattern or drawing.

For stickers, tenoners, saws, etc.

Prices.....\$4.00 to \$8.00

Each .....\$2.50

**Sticker Springs**

Each .....\$0.75

**Sticker Posts**

Each .....\$2.50

**Back Lathe Knives**

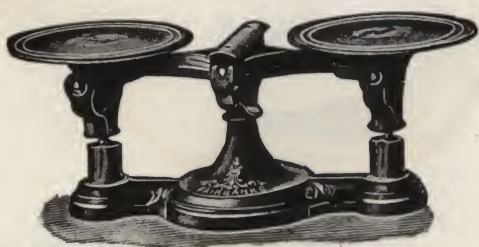
With tool steel face welded to soft steel back milled to pattern, edge sharpened—ready to use.

4 inches wide, per inch.....\$3.25

5 inches wide, per inch..... 3.50

Flat sections over 4 inches long if uniform, per inch..... 2.50

Flat sections, if tapered thickness, take same price as milled.



## Small Knife Balance Scale

These scales are used to accurately balance moulding, shaper, jointer and small planer knives. Unless knives are in perfect balance you will spring the arbor, wear out the babbitt and do rough work.

Price.....\$12.00

## Patent Proportional Knife Balancing Machine



This machine is too well known to the users of machine knives to require a lengthy description. Within the past three years nearly 5,000 have been sold.

In describing its use, let AA, Fig. 1, represent two knives, which are to be fastened onto the cutterhead C. Let it be supposed the knives are of the same specific weight, but that there is an excess of weight at the opposite ends, BB; then, when revolving on the head they will cause a violent jarring or "throwing" by reason of the excess at B' and B". The knives could be reduced to the same specific weight by the aid of a common grocers' scales, but that would not attain the object; by the use of the Proportional Balancing Machine the position, as well as the amount of excess of weight, can be ascertained, so that in reducing the knives to the same specific weight they may be made to agree in their corresponding parts. The method hitherto used is by reducing pairs or sets of knives to the same dimensions, and by aid of common scales to the same specific weight; but so great are the differences in the density of the parts of even the same knife, that a still running set of knives is but an accidental result.

Price, No. 1.....\$20.00

## SPECIAL NOTICE

To Users of Blank Moulding Knives

The Woodworkers' Tool Works select their steel with great care, using only the highest grade of crucible product made from the finest ores. **Good Steel**, properly treated and **Good Workmanship** are essentials in making **Good Knives**.

Slow, even heating is absolutely necessary to properly harden steel, but the greatest care should be exercised in heating a beveled knife, on account of the very thin edge. This thin edge heats much quicker than the body of the knife and unless care is taken, the steel will be non-uniformly heated and consequently, the work that the knife will do will be as non-uniform as the tempering. The quality of a knife depends upon its ability to hold an edge.

**A slow, even, low heat** insures a tough, fine grain and a smooth cutting edge, when our steel is used.

Quick heats are always uneven, the grain coarse and the edge will lack toughness.

When using an open fire, be careful to see that there is a good body of fuel between the tuyere and the steel.

### HARDENING

Heat slowly, thoroughly and uniformly to between 1420° to 1450° Fahr. (cherry red in a dull light.) Quench in a clean quenching oil, similar to Houghton's No. 2 Soluble Quenching Oil, and draw immediately.

### TEMPERING

Draw temper slowly to suit the purpose.

Soft wood .....	medium temper .....	to file easily.
Harder wood.....	medium high temper.....	slow filing.
Hard woods .....	high temper .....	grind.

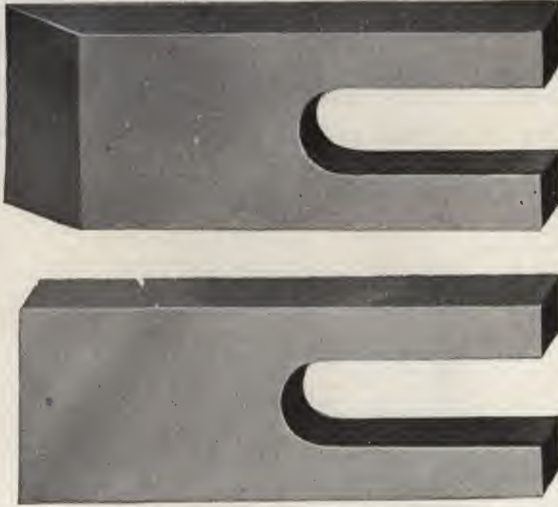


## Slotted Self-Hardening Steel Knives No. 31

4" wide or less,  $\frac{3}{8}$ " thick or less,  
beveled edge only.

1½" long or less, each.....	\$1.65
Over 1½" to 2" long, each.....	1.98
Over 2" to 2½" long, each.....	2.31
Over 2½" to 3" long, each.....	2.64
Over 3" to 3½" long, each.....	2.97
Over 3½" to 4" long, each.....	3.30
Over 4" to 4½" long, each.....	3.63
Over 4½" to 5" long, each.....	3.96
Over 5" to 5½" long, each.....	4.29
Over 5½" to 6" long, each.....	4.62
For each ½" extra width, add 10%.	
For each 1/16" extra thickness, add 10%.	

## Carbon Steel Blanks for Moulding Knives



## Solid Steel Sticker Blanks

Width Inches	Beveled Face and Tempered			Beveled and Faced			Rough Cut and Slotted only		
	¼"	⅝"	⅜"	¼"	⅝"	⅜"	¼"	⅝"	⅜"
1	\$6.48	\$7.20	\$7.80	\$4.92	\$5.52	\$5.88	\$3.24	\$3.84	\$4.20
1¼	6.48	7.20	7.80	4.92	5.52	5.88	3.24	3.84	4.20
1½	7.10	7.82	8.52	5.52	6.12	6.60	3.60	4.32	4.80
1¾	7.82	8.54	9.24	6.12	6.72	7.32	3.96	4.68	5.40
2	8.64	9.46	9.96	6.72	7.44	8.04	4.20	5.16	6.00
2¼	9.72	10.44	11.04	7.44	8.16	8.76	4.68	5.64	6.60
2½	10.80	11.52	12.12	8.16	8.88	9.48	5.16	6.12	7.20
2¾	11.88	12.60	13.20	9.12	9.84	10.44	5.76	6.72	7.80
3	12.96	13.68	14.28	9.96	10.68	11.28	6.24	7.44	8.28
3¼	14.16	14.76	15.36	10.44	11.16	11.88	6.72	7.92	8.88
3½	15.24	15.84	16.44	10.92	11.64	12.48	7.20	8.40	9.48
3¾	16.32	16.92	17.52	11.52	12.24	13.20	7.80	9.00	10.08
4	17.52	18.12	18.72	12.00	12.96	13.80	8.28	9.48	10.56
4¼	18.12	18.72	19.32	12.72	13.68	14.40	8.76	9.96	11.16
4½	18.72	19.32	19.92	13.44	14.40	15.00	9.24	10.44	11.76
4¾	19.32	19.92	20.52	14.16	15.12	15.60	9.84	11.04	12.36
5	19.92	20.52	21.12	14.88	15.48	16.08	10.32	11.64	12.84
5¼	20.52	21.12	21.72	15.60	16.20	16.80	11.04	12.24	13.44
5½	21.12	21.72	22.32	16.32	16.80	17.52	11.76	12.84	14.04
5¾	21.72	22.32	22.92	17.04	17.64	18.24	12.48	13.44	14.64
6	22.08	22.80	23.40	17.52	18.12	18.72	13.08	14.16	15.12

Over 5 inches wide increase 1/6 for each ½ inch over 5 inches.

Advance for thickness over ⅝ inch same as planing knives.

We carry a large stock but when immediate shipment is wanted, advise sizes preferred and sizes that may be substituted.

When ordering, give all dimensions including slots, also state which of three types is wanted.

## High Speed Knives



You desire to get the most work possible from your machine.

The quality of the knives with which you equip your machines has the direct effect upon the possible output of every machine.

It doesn't pay to run any but the best knives in your plant when you can obtain the very highest grade of knives from us.

We use the very best high speed steel obtainable for woodworking purposes.

**Two Inches Wide or Less, 5/32 Inch Thick or Less**

### HIGH SPEED STEEL KNIVES

1 inch long or less.....	\$0.50 per knife
Over 1 to 2 inches long.....	.70 per knife
Over 2 to 3 inches long.....	.85 per knife
Over 3 to 4 1/8 inches long.....	1.05 per knife
Over 4 1/8 inches long.....	.25 cents per inch

If over 2 inches wide, increase 10% for each 1/2 inch.

If over 5/32 inch thick, increase 25% for each 1/32 inch.

### SLOTTED

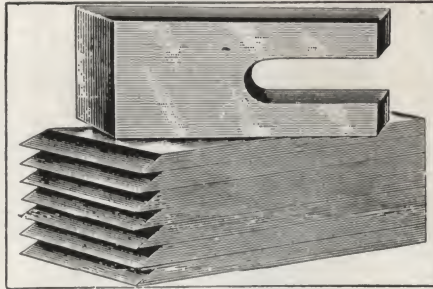
## High Speed Steel Knives

For Stickers and Moulders

Made of solid high speed steel, 18 to 20% Tungsten, are stronger and tougher. These do most cutting before sharpening is necessary.

Each knife is thoroughly tested for uniformity of texture, each knife must meet with rigid strength test, each knife perfectly balanced.

For more service and smoother cutting equip your machines with Woodworkers' Knives. These are the knives that are backed up by our 19 years of cutting experience.



Knives that are made of the finest grade of high speed steel, that take an edge and hold it longer than ordinary high speed knives. Shops that use our knives experience less mill trouble.

**4 Inches Wide or Less, 3/8 Inch Thick or Less**

### SQUARE CUTTING EDGE

#### Price List

2 inches long or less.....	\$3.30 per knife
Over 2 to 4 inches long.....	4.10 per knife
Over 4 to 5 inches long.....	4.90 per knife
Over 5 inches long.....	.98 cents per inch

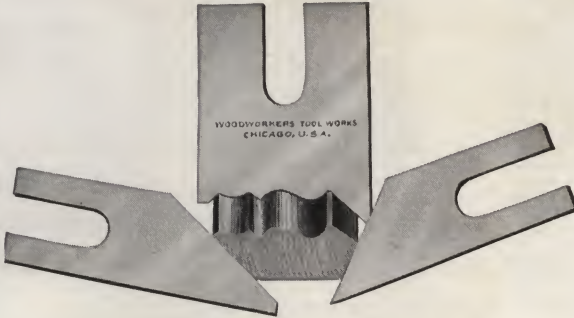
For knives over 4 inches wide, increase 10% for each inch or fraction thereof.

For knives over 3/8 inch thick, increase 10% for each 1/16 inch or fraction thereof.

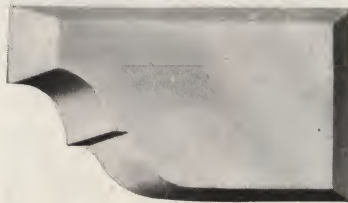


# Moulding Knives

Slotted for Stickers



Beveled Edge for Shapers



Carbon Steel

When ordering Moulding Knives, always send pattern and state thickness. Knives also made from numbers in all Moulding Books.

**MOULDING CUTTERS, RABBETING, SHIP LAP, BEADER, PLOW BITS, SHAPER or VARIETY BITS**

5 inches wide or less.

$\frac{3}{8}$  inch thick or less.

With edges worked to pattern, \$2.00 per inch.

Minimum price per cutter, \$3.00.

If over 5 inches wide, increase  $\frac{1}{6}$  for each additional inch or fraction thereof.

Bevelled ends add 15 cents per cutter.

Advance for extra thickness as follows:

Over  $\frac{3}{8}$  to  $\frac{7}{16}$  thick, 10 per cent.

Over  $\frac{7}{16}$  to  $\frac{1}{2}$  thick, 15 per cent.

Over  $\frac{1}{2}$  to  $\frac{5}{8}$  thick, 20 per cent.

Over  $\frac{5}{8}$  to  $\frac{3}{4}$  thick, 25 per cent.

Over  $\frac{3}{4}$  to  $\frac{7}{8}$  thick, 30 per cent.

Over  $\frac{7}{8}$  to 1 thick, 35 per cent.

Over 1 to  $1\frac{1}{4}$  thick, 40 per cent.

Over  $1\frac{1}{4}$  to  $1\frac{1}{2}$  thick, 75 per cent.

Over  $1\frac{1}{2}$  to 2 thick, 100 per cent.

**High Speed Steel Moulding and Shaper Knives, Welded or Solid Steel**

5" wide or less,  $\frac{7}{16}$ " thick or less, price per inch.....\$2.80

Minimum price per knife.....\$4.10

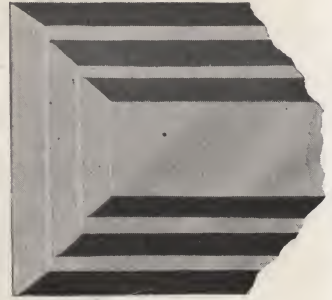
For knives over 5" wide increase 10% for each inch or fraction; for knives over  $\frac{7}{16}$ " thick increase 10% for each  $\frac{1}{16}$ " inch or fraction.

## Carbon Shaper Knife Steel

60° bevel.

Bars 24 inches long.

Width, Inches	Thickness, Inches		
	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$
$\frac{1}{2}$	\$2.77	\$2.95	\$3.12
$\frac{5}{8}$	2.77	2.95	3.12
$\frac{3}{4}$	2.77	2.95	3.12
1	2.77	2.95	3.12
$1\frac{1}{8}$	2.84	3.04	3.23
$1\frac{1}{4}$	2.91	3.13	3.33
$1\frac{1}{2}$	3.04	3.30	3.56
$1\frac{3}{4}$	3.17	3.47	3.78
2	3.30	3.65	4.00
$2\frac{1}{4}$	3.44	3.83	4.23
$2\frac{1}{2}$	3.57	4.01	4.45
$2\frac{3}{4}$	3.70	4.19	4.66
3	3.84	4.37	4.89
$3\frac{1}{2}$	4.01	4.73	5.33
4	4.38	5.08	5.78



## Self-Hardening Shaper Steel

Price Per Inch in Length

Bars 30 Inches Long

Width	Thickness			
	5/32 in.	$\frac{1}{4}$ in.	5/16 in.	$\frac{3}{8}$ in.
$\frac{1}{2}$ "	\$0.12	\$0.14	\$0.16	\$0.19
$\frac{5}{8}$ "	.13	.16	.19	.23
$\frac{3}{4}$ "	.14	.18	.22	.26
$\frac{7}{8}$ "	.15	.20	.24	.29
1"	.16	.22	.27	.32
$1\frac{1}{4}$ "	.18	.26	.32	.38
$1\frac{1}{2}$ "	.20	.31	.38	.45
$1\frac{3}{4}$ "		.35	.42	.49
2"		.40	.48	.55
$2\frac{1}{4}$ "		.44	.54	.60
$2\frac{1}{2}$ "		.48	.59	.66
3"		.57	.70	.78
$3\frac{1}{2}$ "		.66	.81	.90
4"		.75	.92	1.05

Less than 30-inch length, extra for cutting.

## High-Speed Bevel Edge Shaper Steel

A few years ago Carbon Steel was thought to be the best material out of which to make wood-cutting knives. Up to date methods brought about by the urge of today's needs in manufacturing are causing the downfall of many old-fashioned precedents. The advantages of high speed steel knives are at once apparent. Solid high speed steel will hold its cutting edge a great deal longer than Carbon Steel. More hours of continuous production, less time spent in grinding, mean more profits and make the ultimate cost of high speed steel knives much lower than that of Carbon Steel.

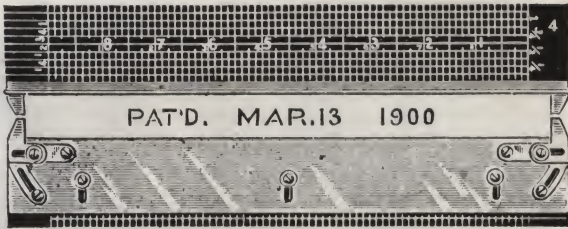
12-inch Bars furnished at one-half above prices. Lengths other than 12-inch or 24-inch, extra for cutting. Charge for cutting necessarily covers cost for waste as well as labor.

PRICE PER BAR---24 Long

Width	Thickness			
	$\frac{5}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "
$\frac{1}{2}$	\$5.40	\$7.56	\$9.72	\$11.88
$\frac{5}{8}$	5.40	7.56	9.72	11.88
$\frac{3}{4}$	5.40	7.56	9.72	11.88
1	5.40	7.56	9.72	11.88
$1\frac{1}{4}$	6.34	8.93	11.52	13.97
$1\frac{1}{2}$	7.20	10.08	13.10	16.13
$1\frac{3}{4}$	8.06	11.34	14.54	17.86
2	9.00	12.60	16.20	19.80
$2\frac{1}{4}$	9.90	13.86	17.82	21.78
$2\frac{1}{2}$	10.80	15.12	19.44	23.76
3	12.24	17.14	22.03	26.93

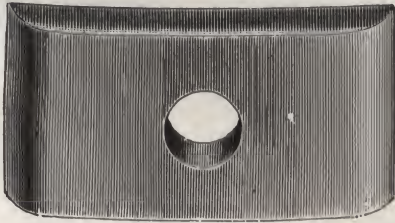


## Reliable Two-in-one Molder's Gage



For quickly setting all moulding cutters; fits all four cylinders and all sizes of machines; adjustable for any surface knife projection and uneven wear of cylinder boxes. You do not need to buy a new gage every time you shift from one size machine to another. Complete instructions with each gage for making cutters. Hundreds of references.

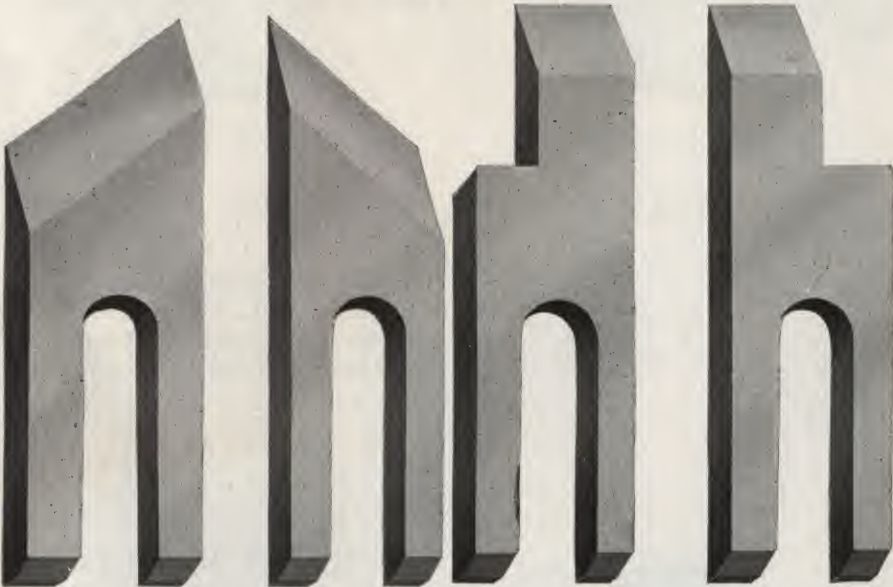
Price, 9" .....\$4.50  
Price, 10" ..... 5.50



## Steel Sticker Caps

Size  $1\frac{1}{2} \times 3\frac{1}{2}$  in.,  $\frac{5}{8}$  in. hole, each. \$0.75  
All sizes made to order.

## Mitre and Rabbet Blanks



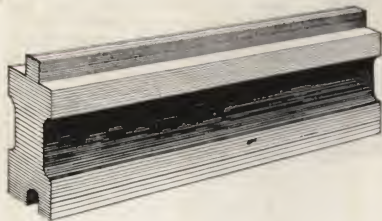
Left Mitre Cut Blanks Right

Left Rabbet Blanks Right

Detail Moulding Knives quickly made with special Cut Blanks. It's a sure way to produce detail and stock Mouldings in a manner sure to shape and at a speed demanded by keen competition. An ample supply of tempered blanks or untempered blanks  $1\frac{1}{4}$ " to  $2\frac{1}{2}$ " in width—right and left hand, require a minimum amount of grinding to follow the architect's lines and speedily produce detailed mouldings. You will find it economical to invest in these special blanks.

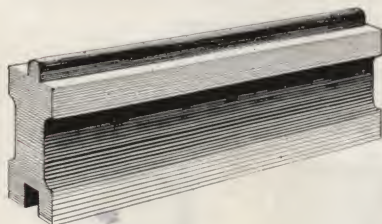
To determine price, use blank list on page 67, adding 50%.

## GAUGES



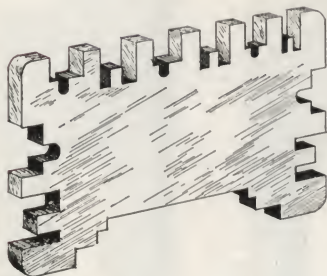
No. 93—Flooring gauge, suitable for all standard matchings. This gauge is of the negative type, i. e., the rib or tongue part of gauge is to test the groove made in the lumber and the grooved edge of gauge to test the tongue.

Price, each.....\$5.75



No. 94—Flooring gauge, same as No. 93, except this gauge is the positive type.

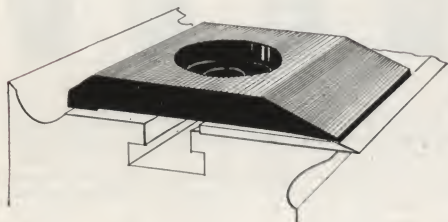
Price, each.....\$5.75



No. 95—Steel pocket gauge covering  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " ceilings;  $\frac{3}{4}$ " and 1" flooring.

For standard matched flooring and ceiling.....\$9.00

For center matched flooring and standard ceiling.\$9.00



No. 96—Steel knife caps, used on square heads for holding high speed steel knives. Made 2" and over.

Price \$1.75 per inch across cutting edge.



## Milled Knives



Doors



Sash



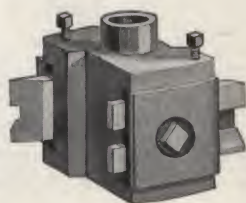
Blind Slat



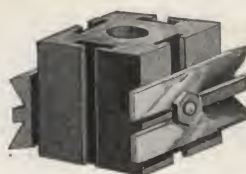
Dowel



Moulding



Capped Head, showing how the solid milled bits should be used.



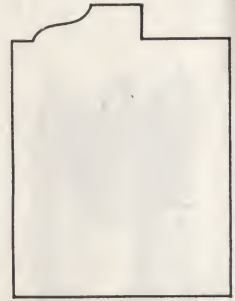
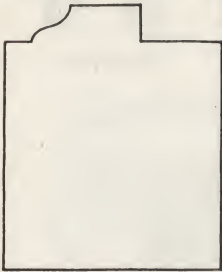
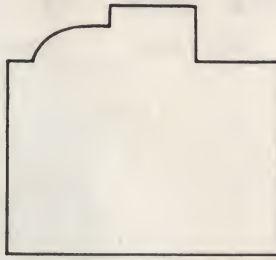
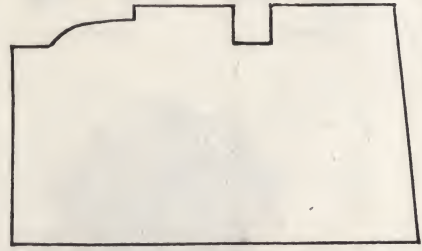
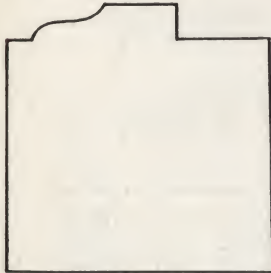
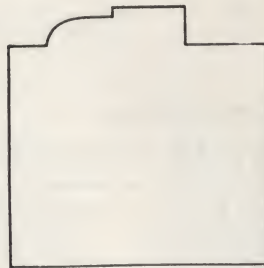
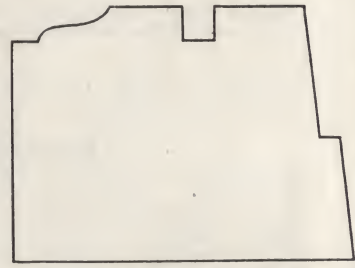
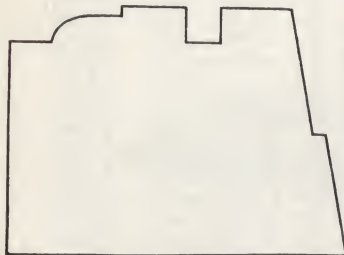
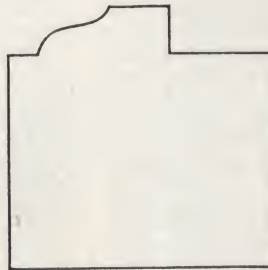
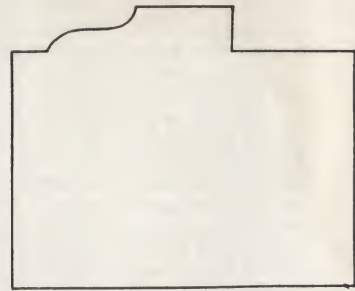
Open or Slotted Head, showing how the solid milled bits should be used.

### PRICE LIST

#### HIGH SPEED STEEL MILLED KNIVES

No. 40 Per pair..\$10.00	No. 59 Per pair..\$12.00	No. 81 Per pair..\$14.00
No. 41 Per pair.. 10.00	No. 60 Per pair.. 14.00	No. 82 Per pair.. 14.00
No. 42 Per pair.. 10.00	No. 61 Per pair.. 10.00	No. 83 Per pair.. Special
No. 43 Per pair.. 10.00	No. 62 Per pair.. 12.00	No. 84 Per pair.. 12.00
No. 44 Per pair.. 10.00	No. 63 Per pair.. 14.00	No. 85 Per pair.. 14.00
No. 45 Per pair.. 14.00	No. 64 Per pair.. 10.00	No. 86 Per pair.. 12.00
No. 46 Per pair.. 10.00	No. 65 Per pair.. 12.00	No. 87 Per pair.. 14.00
No. 47 Per pair.. 10.00	No. 66 Per pair.. 14.00	No. 88 Per pair.. 14.00
No. 48 Per pair.. 14.00	No. 67 Per pair.. 10.00	No. 89 Per pair.. 12.00
No. 49 Per pair.. 14.00	No. 68 Per pair.. 12.00	No. 90 Per pair.. 12.00
No. 50 Per pair.. 10.00	No. 71 Per pair.. 12.00	No. 91 Per pair.. 14.00
No. 51 Per pair.. 12.00	No. 72 Per pair.. 14.00	No. 92 Per pair.. 14.00
No. 52 Per pair.. 10.00	No. 73 Per pair.. 12.00	No. 93 Per pair.. 14.00
No. 53 Per pair.. 12.00	No. 74 Per pair.. 12.00	No. 94 Per pair.. 14.00
No. 54 Per pair.. 14.00	No. 75 Per pair.. 10.00	No. 95 Per pair.. 14.00
No. 55 Per pair.. 10.00	No. 76 Per pair.. 12.00	No. 96 Per pair.. 12.00
No. 56 Per pair.. 12.00	No. 77 Per pair.. 10.00	No. 97 Per pair.. 12.00
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No. 58 Per pair.. 10.00	No. 80 Per pair.. 12.00	

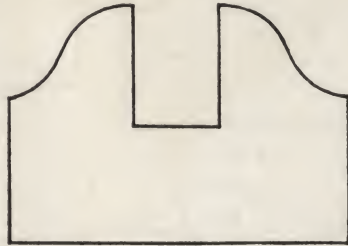
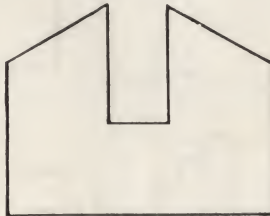
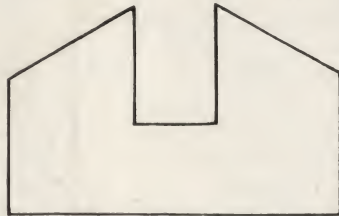
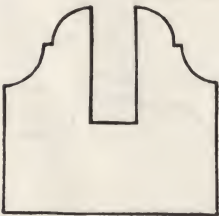
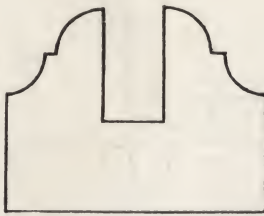
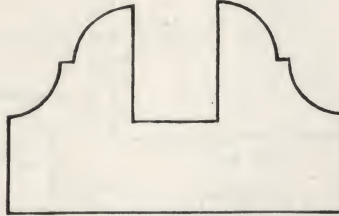
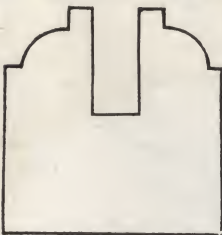
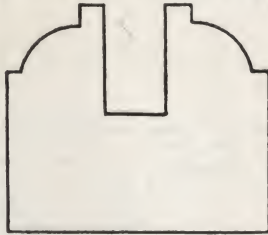
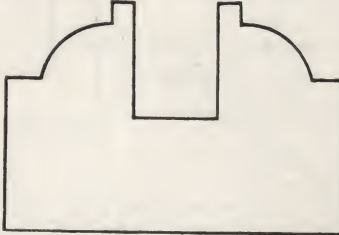
## Order By Number

No. 40— $1\frac{1}{8}$ " O. G.No. 41— $1\frac{1}{8}$ " Ovolo.No. 42— $1\frac{1}{8}$ " O. G.No. 43— $1\frac{1}{8}$ " O. G.No. 44— $1\frac{3}{8}$ " Ovolo.No. 94— $1\frac{3}{4}$ " O. G. Check Rail.No. 46— $1\frac{3}{8}$ " O. G.No. 47— $1\frac{3}{8}$ " Ovolo.No. 48— $1\frac{3}{8}$ " O. G. Check Rail.No. 49— $1\frac{3}{8}$ " Ovolo. Check Rail.No. 50— $1\frac{3}{8}$ " O. G.No. 51— $1\frac{3}{4}$ " O. G.



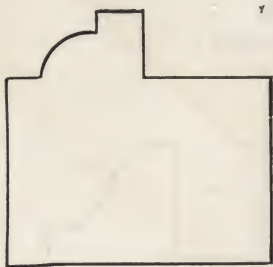
## ORDER BY NUMBER

Be sure to state thickness of panels used

No. 52— $1\frac{1}{8}$ " O. G.No. 53— $1\frac{3}{8}$ " O. G.No. 54— $1\frac{3}{4}$ " O. G.No. 55— $1\frac{1}{8}$ " Bevel.No. 56— $1\frac{3}{8}$ " Bevel.No. 57— $1\frac{3}{4}$ " Bevel.No. 58— $1\frac{1}{8}$ " Cove & Bead.No. 59— $1\frac{3}{8}$ " Cove & Bead.No. 60— $1\frac{3}{4}$ " Cove & Bead.No. 61— $1\frac{1}{8}$ " Ovolo.No. 62— $1\frac{3}{8}$ " Ovolo.No. 63— $1\frac{3}{4}$ " Ovolo.

$1\frac{1}{8}$ " Doors are made with  $\frac{1}{4}$ " grooves for panels  
 $1\frac{3}{8}$ " " " " "  $\frac{5}{16}$ " or  $\frac{7}{16}$ " " " "  
 $1\frac{3}{4}$ " " " " "  $\frac{5}{16}$ " or  $\frac{7}{16}$ " " " "

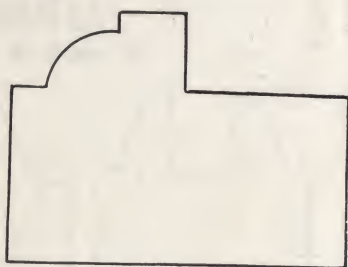
Special size grooves when desired.

Order By  
Number

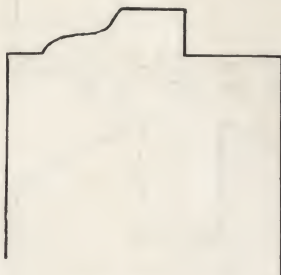
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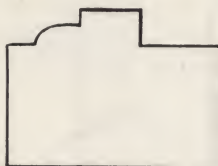
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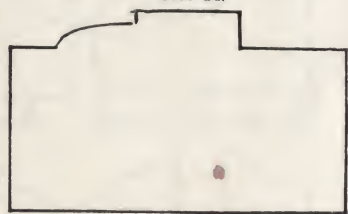
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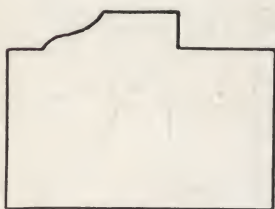
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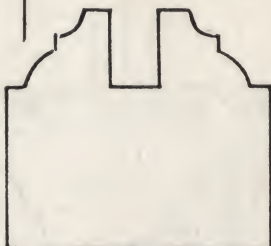
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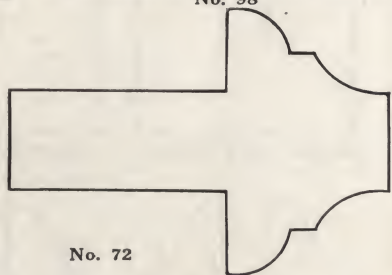
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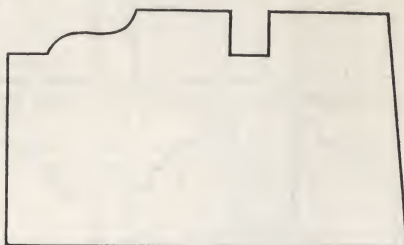
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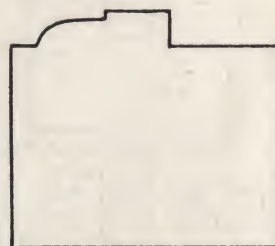
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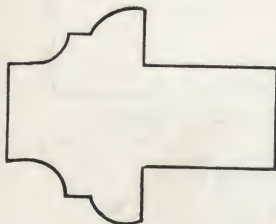
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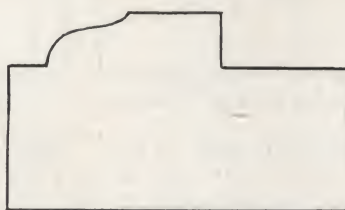
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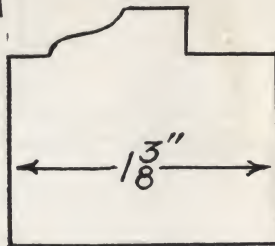
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No. 71



No. 76



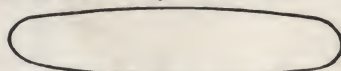
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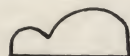
# Order by Number



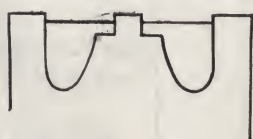
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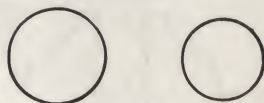
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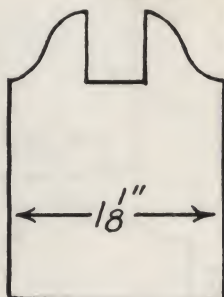
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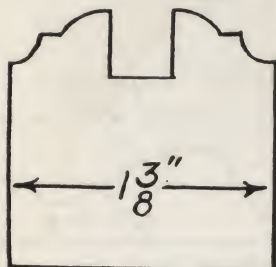
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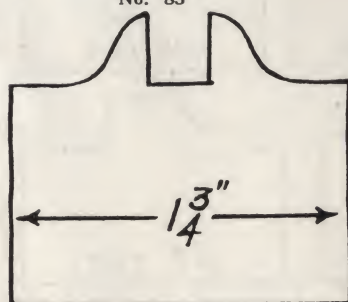
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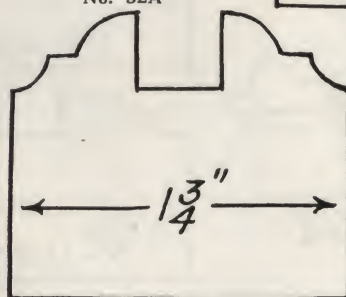
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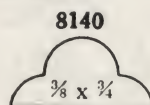
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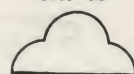
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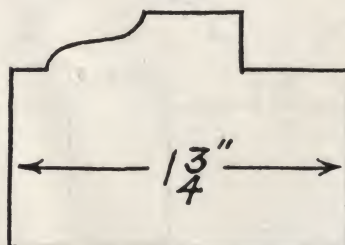
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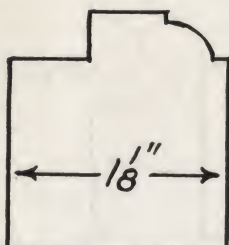
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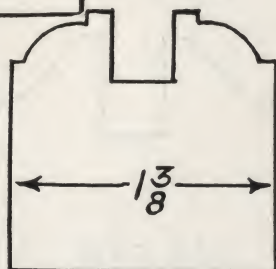
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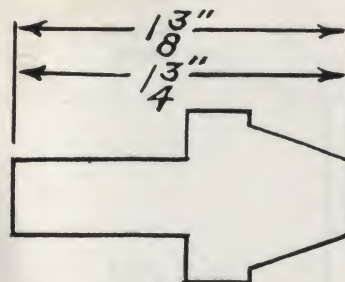
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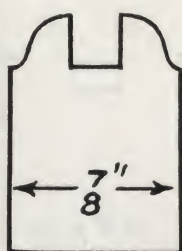
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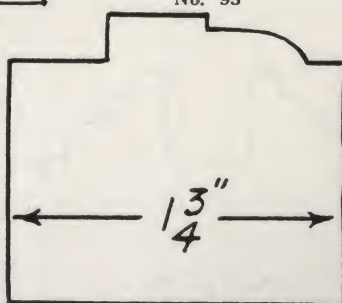
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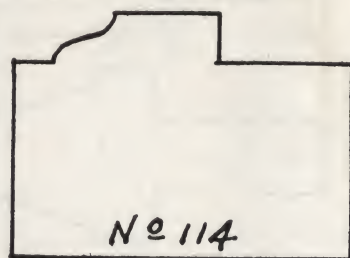
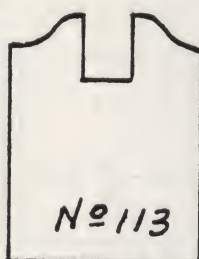
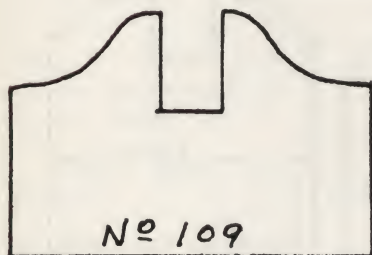
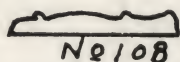
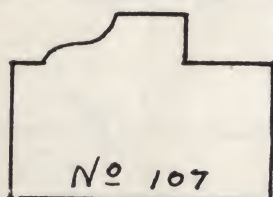
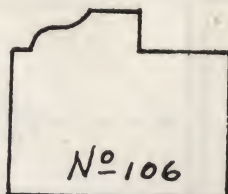
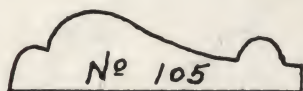
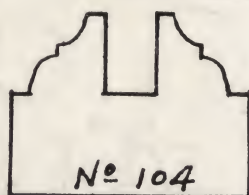
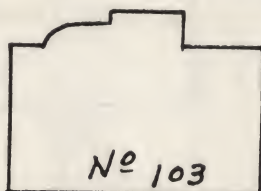
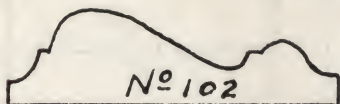
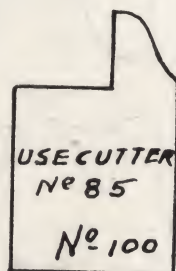
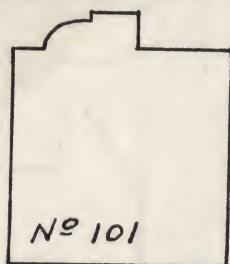
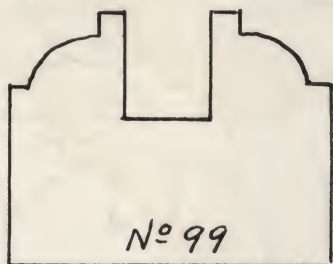


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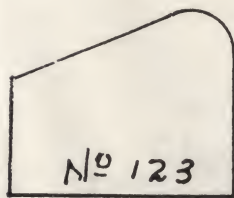
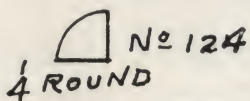
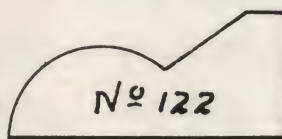
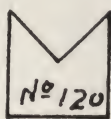
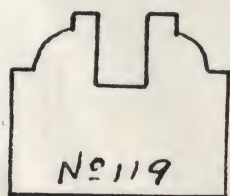
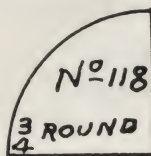
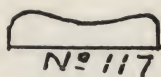
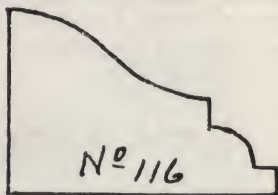
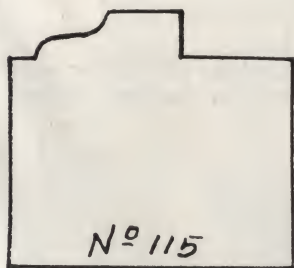
No. 84

## Order By Number





# Order By Number

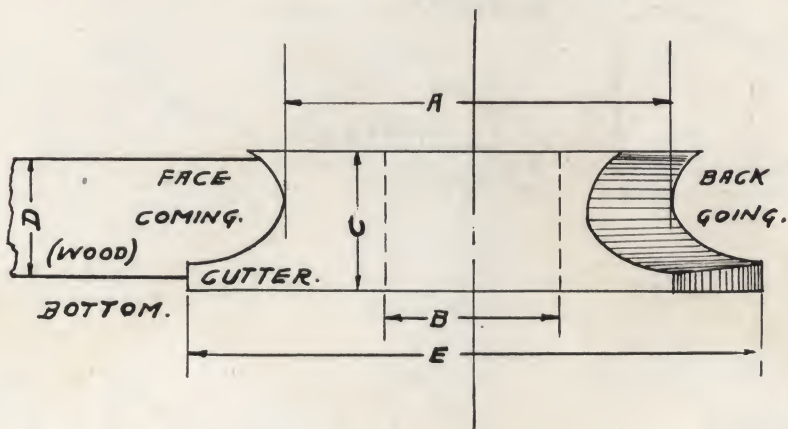


## Instructions

For ordering Solid Steel Cutters, Draw sketch of Cutter and sketch of moulding showing portions of wood to be cut. Send wood sample of moulding if possible.

### FILL IN SIZES

- A. Smallest diameter of cutter. This is usually made same diameter as guide collar if one is used with pattern.
- B. Size of hole.
- C. Thickness of cutter.
- D. Thickness of wood to be cut.
- E. Large diameter of cutter we will determine when given size A and shape of moulding.



Sketch above shows cutter for head to the right of the operator. This spindle revolves to the left when looking at top or anti-clockwise.

Send full size sketches when ordering cutters.



## Panel Raising Bit

Applied to Variety Moulding Machines

Can Be Used on Reversible or  
One Way Spindle

They are made to either work one way or for the reversible spindle according to the requirements of the machine. Cut



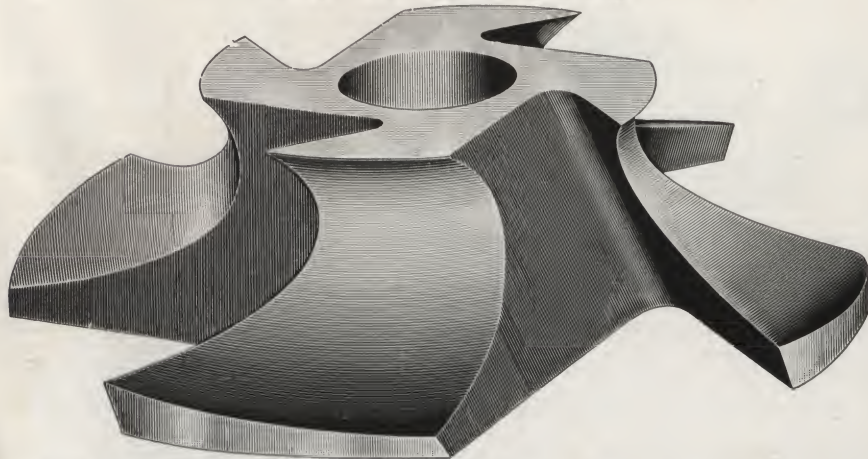
shows the reversible class. All cutters are accurately ground for clearance, the central portion of the blade being hollowed out so as to have only the immediate cutting edges to come into contact with the lumber. They cut free and easy, throwing shavings like a jack plane.

Cutters for the "one-way" machine carry also a splendid clearance and do rapidly and smoothly all work put up to them.

Price each Cutter to cut 1½ deep .....	\$12.00
Price each Cutter to cut 2.. deep .....	13.00
Price each Cutter to cut 2½ deep .....	14.00
Price each Cutter to cut 3.. deep .....	15.00

## Solid Steel Shaper Cutters

To Cut Any Shape of Moulding



Our experience in making Solid Steel Shaper Cutters covers a period of many years, and we are prepared to furnish promptly all kinds of special cutters. Our cutters will not burn. Note the clearance on cutter shown herewith. These cutters are made with a sheer tooth, as shown herewith, which will prevent tearing out and make cutter cut easy. In ordering, give size of spindle, number of teeth, sample of moulding and state diameter and thickness.

For prices see next page.

## PRICE LIST

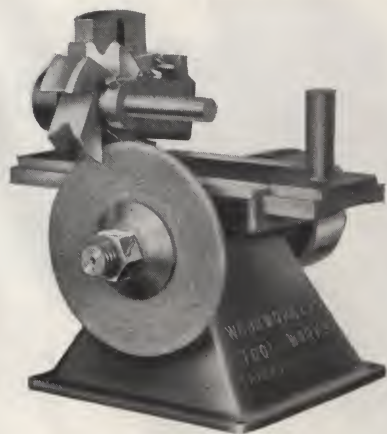
### Solid Steel Moulding Cutters

#### Thickness

Dia.	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	$1\frac{3}{4}$ "	2"	$2\frac{1}{4}$ "	$2\frac{1}{2}$ "	$2\frac{3}{4}$ "	3"	$3\frac{1}{4}$ "	$3\frac{1}{2}$ "	4"
$1\frac{3}{4}$ "	7.00	7.50	9.00	10.50	12.00	13.50	15.00	16.50	18.00	19.50	21.00	22.50	24.00	25.50	27.00
2"	8.50	9.00	10.50	12.00	13.50	15.00	16.50	18.00	19.50	21.00	22.50	24.00	25.50	27.00	28.50
$2\frac{1}{4}$ "	10.00	10.50	12.00	13.50	15.00	16.50	18.00	19.50	21.00	22.50	24.00	25.50	27.00	28.50	30.00
$2\frac{1}{2}$ "	11.50	12.00	13.55	15.00	16.50	18.00	19.50	21.00	22.50	24.00	25.50	27.00	28.50	30.00	31.50
$2\frac{3}{4}$ "	13.00	13.50	15.00	16.50	18.00	19.50	21.00	22.50	24.00	25.50	27.00	28.50	30.00	31.50	33.00
3"	14.50	15.00	16.50	18.00	19.50	21.00	22.50	24.00	25.50	27.00	28.50	30.00	31.50	33.00	34.50
$3\frac{1}{4}$ "	16.00	16.50	18.00	19.50	21.00	22.50	24.00	25.50	27.00	28.50	30.00	31.50	33.00	34.50	39.00
$3\frac{1}{2}$ "	17.50	18.00	19.50	21.00	22.50	24.00	25.50	27.00	28.50	30.00	31.50	33.00	34.50	39.00	40.00
$3\frac{3}{4}$ "	19.00	19.50	21.00	22.50	24.00	25.50	27.00	28.50	30.00	31.50	33.00	34.50	39.00	40.00	41.50
4"	20.50	21.00	22.50	24.00	25.50	27.00	28.50	30.00	31.50	33.00	34.50	39.00	40.00	41.50	42.00
$4\frac{1}{4}$ "	21.00	22.50	24.00	25.50	27.00	28.50	30.00	31.50	33.00	34.50	39.00	40.00	41.50	42.00	45.00
$4\frac{1}{2}$ "	23.50	24.00	25.50	27.00	28.50	30.00	31.50	33.00	34.50	39.00	40.00	41.50	42.00	45.00	48.00
$4\frac{3}{4}$ "	25.00	25.50	27.00	28.50	30.00	31.50	33.00	34.50	39.00	40.00	41.50	42.00	45.00	48.00	53.00
5"	26.50	27.00	28.50	30.00	31.50	33.00	34.50	39.00	40.00	41.50	42.00	45.00	48.00	53.00	55.00
$5\frac{1}{4}$ "	28.00	28.50	30.00	31.50	33.00	34.50	39.00	40.00	41.50	42.00	45.00	48.00	53.00	55.00	57.00
$5\frac{1}{2}$ "	29.00	30.00	31.50	33.00	34.50	39.00	40.00	41.50	42.00	45.00	48.00	53.00	55.00	57.00	59.00
$5\frac{3}{4}$ "	32.00	33.50	34.00	34.50	39.00	40.00	41.50	42.00	45.00	48.00	53.00	55.00	57.00	59.00	61.00
6"	33.00	34.00	35.00	39.00	40.00	41.50	42.00	45.00	48.00	53.00	55.00	57.00	59.00	61.00	63.00
$6\frac{1}{2}$ "	36.00	38.00	39.00	40.00	41.50	42.00	45.00	48.00	53.00	55.00	57.00	59.00	61.00	63.00	66.00
7"	38.00	39.00	40.00	41.50	42.00	45.00	48.00	53.00	55.00	57.00	59.00	61.00	63.00	66.00	68.00
$7\frac{1}{2}$ "	39.00	40.00	41.50	42.00	45.00	48.00	53.00	55.00	57.00	59.00	61.00	63.00	66.00	68.00	71.00
8"	40.00	41.50	42.00	45.00	48.00	53.00	55.00	57.00	59.00	61.00	63.00	66.00	68.00	71.00	73.00
$8\frac{1}{2}$ "	41.50	42.00	45.00	48.00	53.00	55.00	57.00	59.00	61.00	63.00	66.00	68.00	71.00	73.00	75.00
9"	42.00	45.00	48.00	53.00	55.00	57.00	59.00	61.00	63.00	66.00	68.00	71.00	73.00	75.00	80.00



## No. 1 Solid Cutter Grinder



An inexperienced man with this grinder can sharpen your solid cutters in much less time than an expert can in the old way. Your angle of cut is the same on all cutting points and your cutter is in perfect balance. There is no guesswork. The machine is provided with all necessary adjustments, gauges and stops for different size heads.

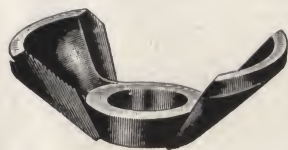
Machine is furnished complete with cup emery wheel and countershaft.

Price, net.....\$85.00

With countershaft.....\$100.00

## Reversible Cutters

Our reversible cutters are made like our solid steel cutters, except these cut either right or left hand and are used on single reversible shapers, cutting smooth and easily.

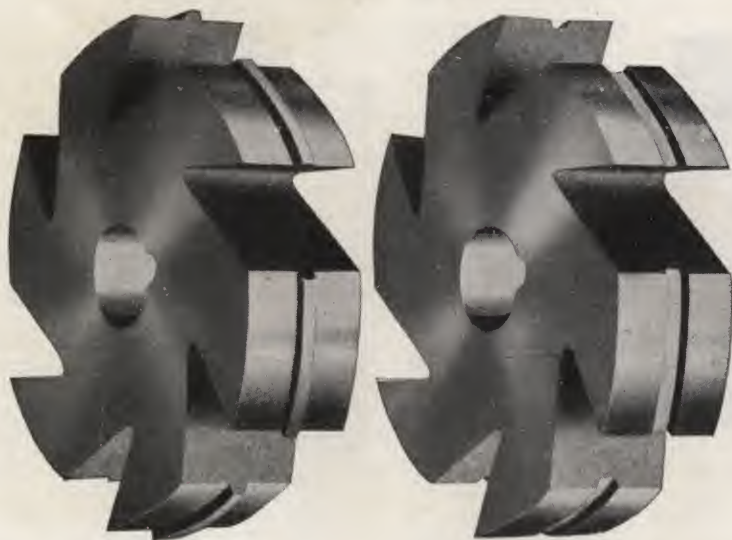


Price, Each

THICKNESS

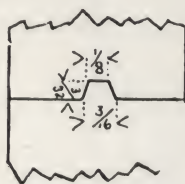
Dia.	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	$1\frac{3}{4}$ "	2"	$2\frac{1}{4}$ "	$2\frac{1}{2}$ "
$1\frac{3}{4}$ "	\$9.00	\$9.76	\$10.50	\$11.26	\$12.00	\$12.76	\$14.26	\$15.86	\$17.26	\$18.76	\$20.26	\$21.76
2"	10.50	11.26	12.00	12.76	13.50	14.26	15.76	17.26	18.76	20.26	21.76	23.26
$2\frac{1}{4}$ "	12.00	12.76	13.50	14.26	15.00	15.76	17.26	18.76	20.26	21.76	23.26	24.76
$2\frac{1}{2}$ "	13.50	14.26	15.00	15.76	16.50	17.26	18.76	20.26	21.76	23.26	24.76	26.26
$2\frac{3}{4}$ "	15.00	15.76	16.50	17.26	18.00	18.76	20.26	21.76	23.26	24.76	26.26	27.86
3"	16.50	17.26	18.00	18.76	19.50	20.26	21.76	23.26	24.76	26.26	27.86	29.26
$3\frac{1}{4}$ "	18.00	18.76	19.50	20.26	21.00	21.76	23.26	25.76	26.26	27.86	29.26	30.76
$3\frac{1}{2}$ "	19.50	20.26	21.00	21.76	22.50	23.26	24.76	26.26	27.86	29.26	30.76	32.26
$3\frac{3}{4}$ "	21.00	21.76	22.50	23.26	24.00	25.50	26.26	27.86	29.26	30.76	32.26	35.76
4"	22.50	23.26	24.00	24.76	25.50	26.26	27.86	29.26	30.76	32.26	35.76	37.10

## Solid Steel Glue Joint Cutters



We carry the sizes listed below in stock and ship same day orders are received. Cutters of special diameter and thickness are made promptly to order.

When ordering state diameter of spindle. Stock sizes have  $1\frac{1}{8}$ ',  $1\frac{1}{4}$ ' or  $1\frac{5}{8}$ ' spindle, fitting Falls, Jenkins, Meyers, Diehl, Fay, Egan, or Yates Automatic Jointers. Below we show actual size of standard joint. This size and style we have found the best but will make any size or style of joint on application.



List Price of 20th Century Glue-Joint Cutters

Thickness	Per pair	Thickness	Per pair
$1\frac{1}{4}$ .....	\$ 42.00	$2\frac{3}{4}$ .....	\$ 72.00
$1\frac{3}{8}$ .....	44.00	3 .....	80.00
$1\frac{1}{2}$ .....	46.00	$3\frac{1}{4}$ .....	88.00
$1\frac{5}{8}$ .....	48.00	$3\frac{1}{2}$ .....	96.00
$1\frac{3}{4}$ .....	50.00	$3\frac{3}{4}$ .....	104.00
2 .....	55.00	4 .....	112.00
$2\frac{1}{4}$ .....	60.00	$4\frac{1}{4}$ .....	120.00
$2\frac{1}{2}$ .....	66.00	$4\frac{1}{2}$ .....	128.00

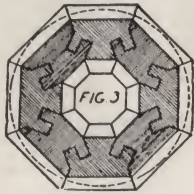
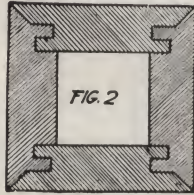
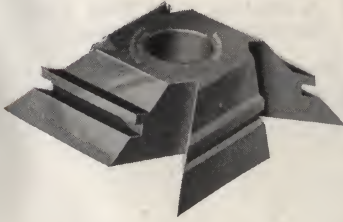
Straight Face, instead of Tongue and Groove, \$2.00 per pair less.

Special Cutters—Delivery about 1 week.

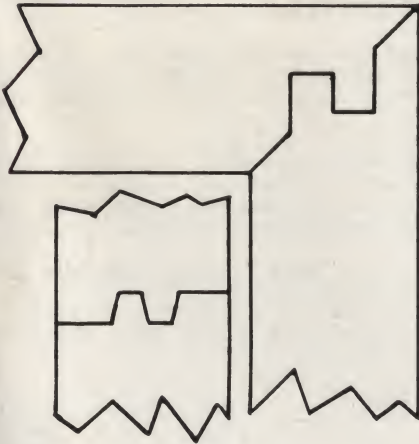


## Champion Two-In-One Glue Joint Cutter

**Champion Two-In-One  
Mitre Lock Cutter**



With this cutter perfect glue joints can be made with a single cutting tool, it being so formed that tongue and groove fit perfectly by merely reversing the stock. It satisfactorily replaces the two solid steel glue joint cutters commonly used on jointers, shapers, molder or saw tables, in which one cutter cuts the groove stock and another the tongue. Other advantages include a positive saving of time in changing cutters and handling stock, while the extra holding surface for the glue and large matched sections make a very solid joint.



Mitre lock joint made with one of our Champion Mitre Lock Glue Joint Cutters.

Champion Two-In-One Cutter Heads are made of high grade steel, milled to shape, hardened and ground, and retain their original form throughout the life of the tool, being ground only from in front. They may be depended upon for accurate cutting whether machines are hand or power fed.

When ordering, give outside diameter of cutter, size of spindle hole, thickness of stock on which they are to be used, and any other necessary data.

Two-In-One Glue Joint Cutters,  $1\frac{1}{2}$ " x 5" diameter, for stock up to  $1\frac{1}{2}$ " thick .....\$32.00

Two-In-One Mitre Lock Cutters,  $1\frac{1}{2}$ " thick, for stock up to  $1\frac{1}{4}$ " thick .....\$48.00

Other sizes to order—state size of hole.

## Champion Cope Cutters



**A Modern Tool That Will Increase Your Output.**

**Successfully Replaces Old-Fashioned Cope Head and Knives.**



### CHAMPION COPE CUTTERS

These solid cutters are extremely rapid in operation and cut the same shape until entirely worn out, as they are sharpened by grinding from front of tooth only. Six cutting edges with correct clearance insure a smooth and clean cut, ready for jointing.

Champion Cope Cutters are commonly used on tenoners, but may be used on molders and shapers as well. Their use saves a great deal of time over the old-fashioned cope head, the knives of which must be removed for grinding and afterwards replaced. In addition, its work is much more uniform.

We make these cutters for sash, door and blind factories, and also for cabinet shops and furniture factories.

When ordering, give diameter, thickness, size of spindle hole, and send sample mold or sketch.

### PRICES

Diameter not over	6",	each.....	\$28.50
"	"	7",	35.00
"	"	8",	38.00
"	"	9",	40.00
"	"	10",	43.00



## Eliminating the Needleless Operation in Cutting Check Rail Slots

No longer is it necessary for check rail slots to be produced on the shaper.



Here We Have  
THE  
CHAMPION  
CHECK  
RAIL  
CUTTER

A cutter which, by simple arrangement, fits on any tenoner and in one continuous operation makes the complete check rail slot.

Because of the construction of tenoners there is not enough clearance for cutters to cut  $2\frac{1}{4}$ -in. deep. This difficulty is overcome by a special threaded arrangement of attaching check rail cutter to the arbor. The Champion Check Rail Cutter has a threaded hole, and the upper cope arbor of the tenoner is specially threaded to correspond with it, therefore the connection permits of the proper clearance for cutting  $2\frac{1}{4}$ -in. deep. The special threading of arbor will not interfere with the use of square heads when occasion demands, since the threading occupies a length of only  $\frac{1}{2}$ -in., whereas square heads are  $1\frac{1}{4}$ -in. in thickness.

One particular and pleasing feature in this connection is that the check rail cutter can be quickly attached or instantly removed—no permanency about the arrangement.

Champion Check Rail Cutters can be furnished in a wide variety of shapes, a few of which are shown in accompanying sketches.

Regrinding of cutters can be accomplished easily and without fear of changing shape, as it is done from front of tooth only.

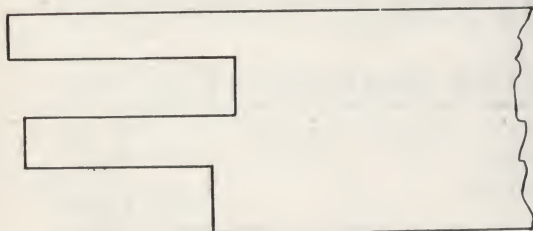
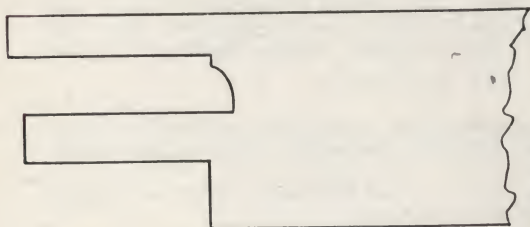
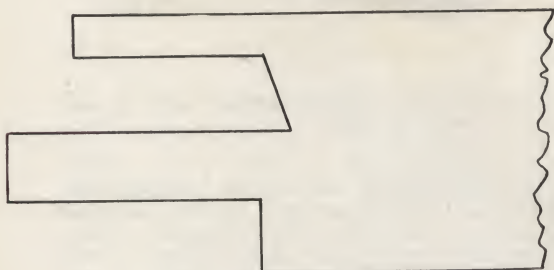
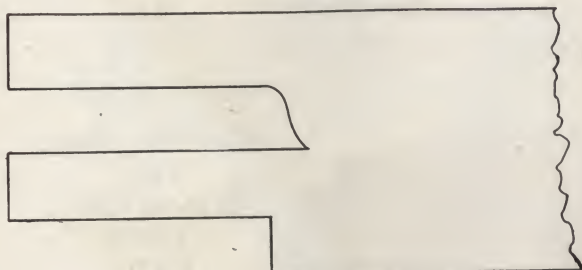
If you have any quantity of check rail cutting to do, it will pay you to thoroughly investigate the claims we make for this new Champion Cutter.

### Prices

Diameter up to	6"	.....	each, \$26.00
"	"	7"	..... " 32.00
"	"	8"	..... " 36.00
"	"	9"	..... " 38.00
"	"	10"	..... " 40.00

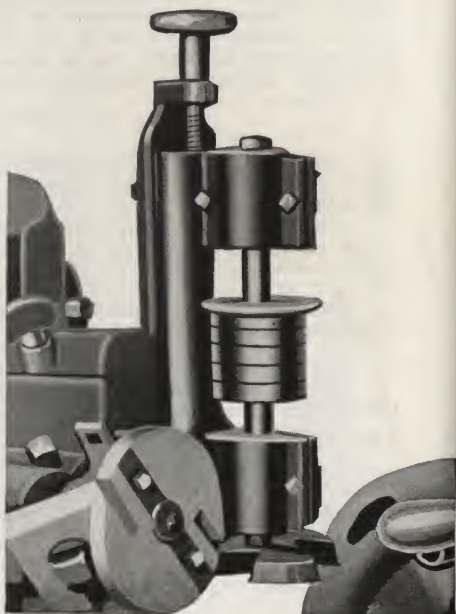
## Champion Check Rail Cutter

In ordering send wood pattern of shape you wish to cut. Unless otherwise ordered these are made for top cope arbor. Give diameter thickness and diameter of arbor. If arbor is  $\frac{3}{4}$ " diameter, Cutters will be made standard right hand  $\frac{5}{8}$ " threaded hole.



These are some of the shapes commonly used.

This illustration shows cutter fastened to top Cope arbor.





## Two-Wing Cope & Check Rail Cutters



### Try These on Your Double-End Tenoners

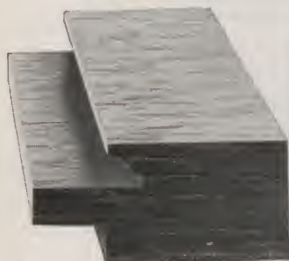
These new two-wing cutters will really produce the accurate work desired on your double-end tenoner. They are milled-to-pattern and always cut the same shape. A smooth cutting tool, easily sharpened and always ready for use. Get a set of these for your double-end tenoner and learn what satisfactory work means on this machine.

These cutters do equally satisfactory work on the single-end tenoner and other machines.

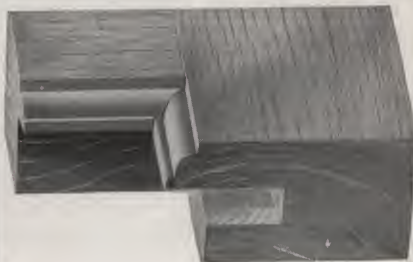
Price, each thickness.

Diameter....	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "
5".....	\$14.00	\$14.00	\$14.00	\$16.00	\$18.00	\$20.00	\$22.00	\$24.00	\$26.00
6".....	14.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00
7".....	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00
8".....	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00	32.00
9".....	18.00	20.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00
10".....	20.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00	36.00
12".....	22.00	24.00	26.00	28.00	30.00	32.00	34.00	36.00	38.00
14".....	24.00	26.00	28.00	30.00	32.00	34.00	36.00	38.00	40.00

## Champion Shaper Cutters for Cabinet Work



Rail



Style and Rail



Style

Cabinet Work Turned Out on Shaper

## Champion Cabinet Shaper Cutters

These Cutters were designed for Cabinet and other work in plants where tenoning machines and Sash Stickers are not in use. All work shown in illustrations on following pages can be turned out on a single or double spindle shaper. Set ups can be made much quicker than on stickers and tenoners. These Cutters are at all times ready for use and by the aid of a few wooden slides, gauges, etc., the best of results can be obtained.

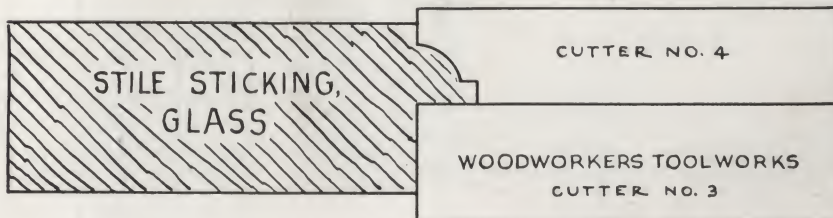
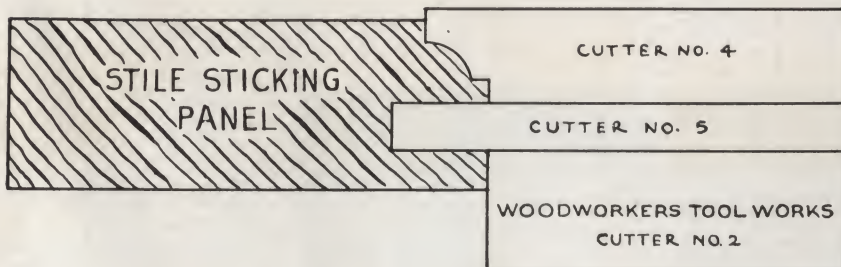
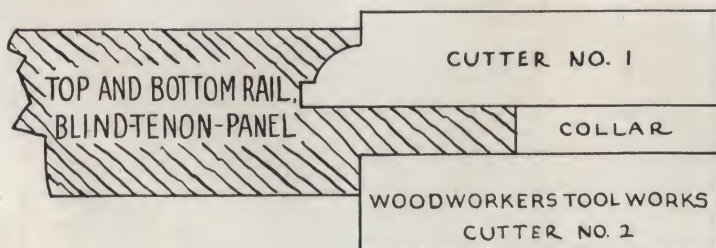
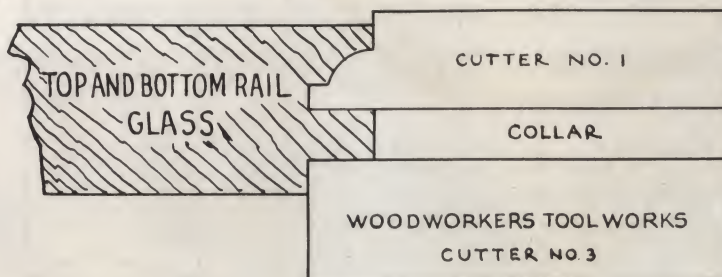
Owing to the great variety in sizes, shapes, spindle diameters, etc., all cutters of this class are made per order.

Cutters for special and catalogue shapes are turned out promptly, as our facilities are unexcelled. In ordering special shapes send a wood sample, or an accurately made drawing.

When ordering state size of spindle, single or double arbor, revolution of spindle when looking down at tap, and cutters wanted ordering by numbers on next page.

Price per set, 5 Cutters, 1 Collar.....\$125.00

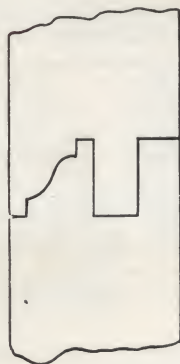
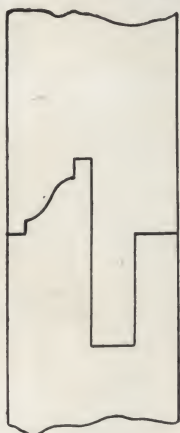




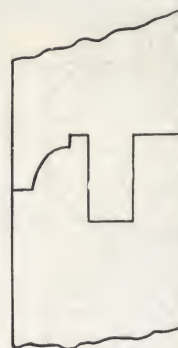
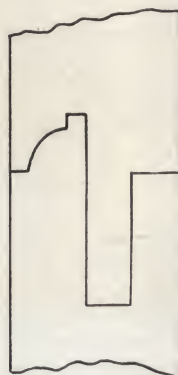
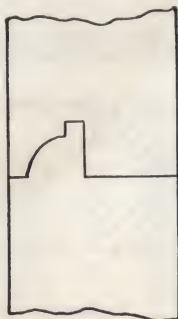
Different shapes cut  
with our

# **Champion Cabinet Shaper Cutter**

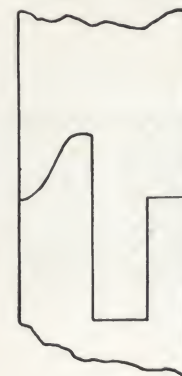
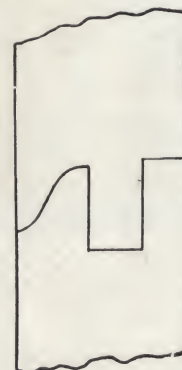
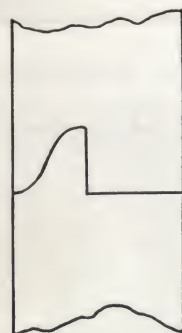
Special No. 4 Shape



No. 4



Ovolo



O. G.



## Champion Jr. Cabinet Cutters

Answering a demand for Cabinet Cutters lower in price than our Champion Cutters we have designed the above two-tooth cutters which do the same work as our Champion Cutters.



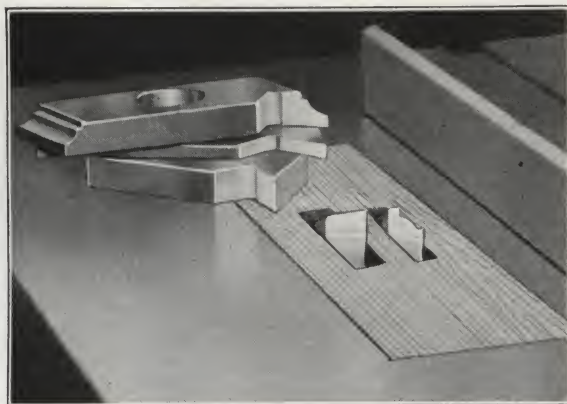
The Champion Jr. Cabinet Cutters are especially designed for shaping, edge sticking and coping in general cabinet and special furniture work. They are always ready for instant use on the spindles of shapers or variety machines. This cut shows cutters as made for saw table. Cutters for shaper are made opposite hand. When ordering for saw table state distance from center of arbor to table top and give size of hole. This dimension should not exceed  $2\frac{3}{4}$ ", otherwise slight advance in price. Also for shaper state size of spindle, revolving to left or right. Shaper cutters made opposite hand to cut unless otherwise ordered.

**Price, per set \$40.00**

(Standard Ovolo Shape  
as above)

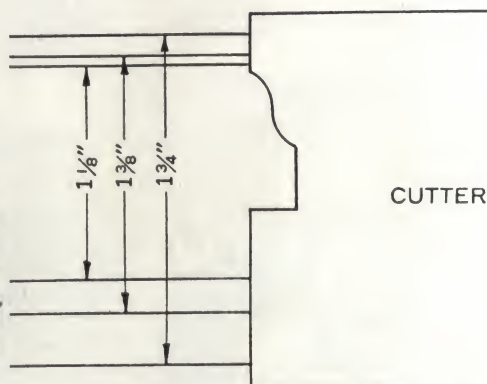
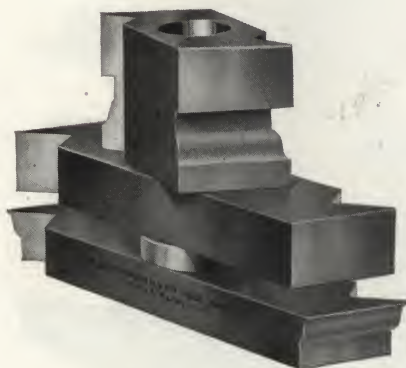
**Cutters for Special Shapes  
charged at 30% advance**

Cut to right shows  
Junior Cutters used on  
H & A No. 10 portable  
saw with  $\frac{3}{4}$  horse power  
motor.



# Champion Junior SASH CUTTERS

For Shapers and Small Saw Tables

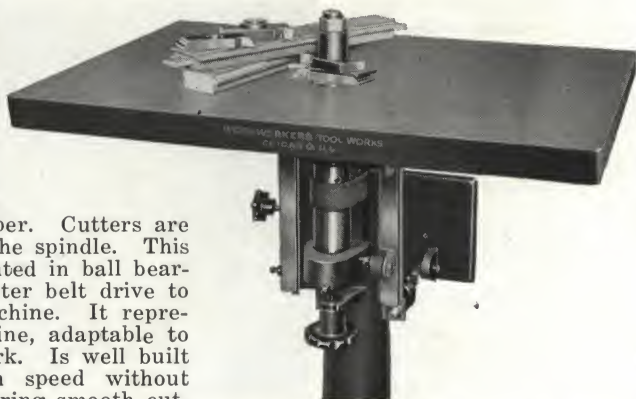


The Champion Junior Sash Cutters illustrated here are for ogee sash sticking and coping. They can be used on the spindles of shapers, stickers, tenon copes, variety saws or universal woodworkers. These cutters are made of high-grade carbon steel properly tempered for cutting wood, and for grinding in the usual way with abrasive wheels.

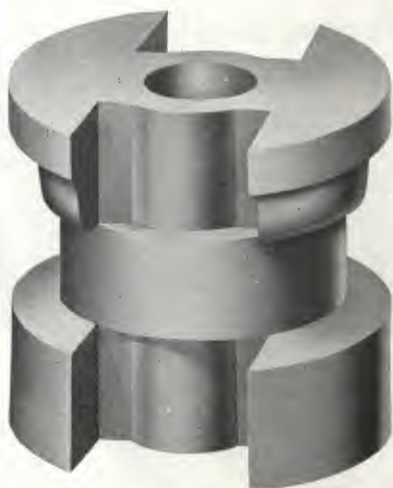
The Champion Junior Sash Cutters, representing one set of three cutters and one collar, will cut any size sash,  $1\frac{1}{8}$ " ,  $1\frac{3}{8}$ " or  $1\frac{3}{4}$ " , using same size ogee and same size  $5/16$ " tenon, the difference being in rabbet as shown in sketch. These cutters sell for \$40.00 per set. If cutters are desired for check rail sash, the large ogee tenon cutter must be made in two sections, making the set cost \$45.00. These cutters are milled to shape and, being ground on face of tooth only, will always cut the same shape until worn out.

Price per set, \$40.00

The use of the Champion Junior Milled Sash Cutters is illustrated in the accompanying picture of the new pedestal-type shaper. Cutters are shown in position on the spindle. This shaper spindle is mounted in ball bearings and has short-center belt drive to motor attached to machine. It represents a low-cost machine, adaptable to a great variety of work. Is well built and operates at high speed without vibration, thereby insuring smooth cutting. Set-ups are easily and quickly made on this new general-purpose shaper.







## Sash Cutter

For cutting O. G. and other sash. Center collar acts as guide and wood is not cut at this point. Send wood patterns for price and state kind of machine used on—reversible or one way spindle.



## Rosette Cutters

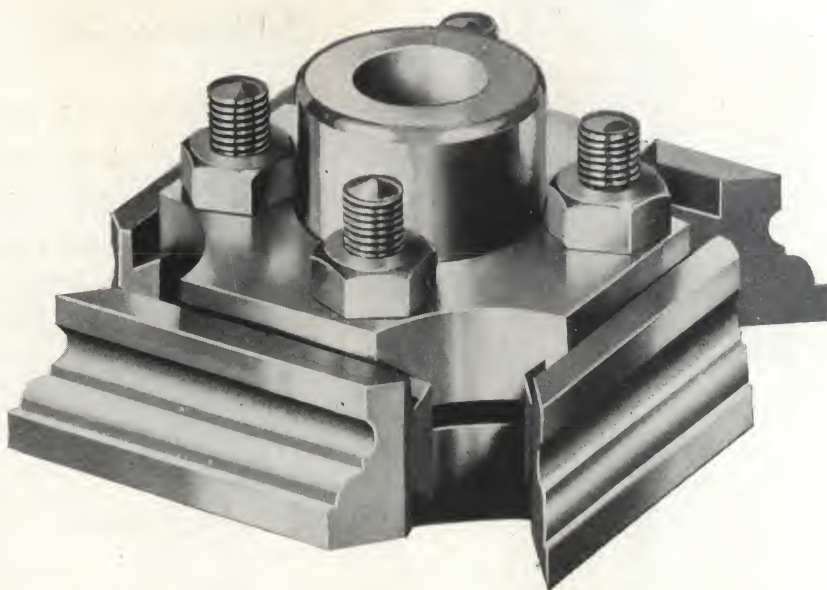
In ordering, please state in which way they are to cut, right or left; also send correct drawing of rosette you wish to make so that we can distinguish the different members without difficulty, and give exact size of shank. We make these cutters with two teeth.



## Divided Shaper Cutter

This is a very desirable cutter and is especially designed to round the edges of stock without the use of a pattern. A thin collar is placed between the cutters, against which the stock is shoved while lying on the table. These tools are made either solid or divided, in any diameter and thickness, and any shape of cutting edge, and made in four or six wings. Prices vary accordingly.

## Diehl Adjustable Shaper Heads



DIEHL Adjustable Shaper Heads are so superior to the old style heads with fly bits, that a comparison of the quality of work and cost of production will convince the most skeptical. They are built special for your machine and your kind of work.

If you are troubled with your cutters tearing, slivering, or ruffling on your harder jobs, or if you have to do an excessive amount of sanding, the DIEHL Shaper Head will be of particular interest to you. Many of our customers have been able to eliminate sanding altogether on certain jobs. Where patterns are changed often, it is not necessary to replace an entire head, simply the blades.

Smoother work, faster feeds, speed of set-up, and less grinding, all make for savings in your machine-room. Because of the modern high speeds so necessary to present-day production, the choice of steel is of vast importance. We have chosen a particularly dense, close-grained steel, knowing that it will give a value all out of proportion to its cost.

Where irregular shapes are necessary, we have constructed heads to cut both with and against the grain with perfect results. Many cuts thought impossible because of tearing or burning are made with ease on the DIEHL Shaper Head.

### SHAPER COLLARS

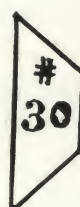
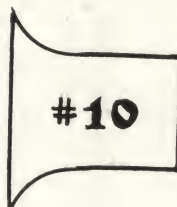
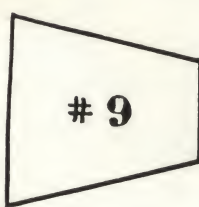
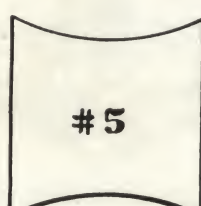
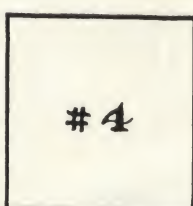
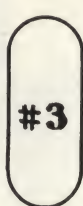
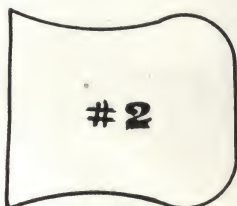
We are in position to make solid, live collars, dead collars, or ball-bearing collars for your particular requirement.

**There is sure to be less sanding with Diehl equipment.**

Send wood samples of moulding when asking for prices.



## Carving Machine Cutters

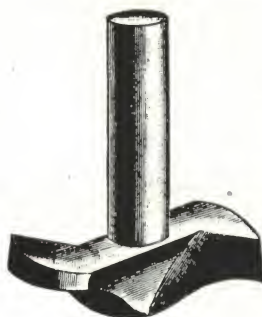


PRICE, EACH  
THICKNESS

Diam.	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	1 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	1 $\frac{3}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{5}{8}$ "	1 $\frac{3}{4}$ "	2"
$\frac{1}{2}$ in...	\$2.40	\$2.70	\$3.00	\$3.30	\$3.60	\$3.90	\$4.20	\$4.50	\$4.93	\$5.25	\$5.63	\$6.00	\$6.53	\$7.05
$\frac{3}{4}$ in...	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.93	5.25	5.63	6.00	6.53	7.05	7.73
1 in...	3.00	3.30	3.60	3.90	4.20	4.50	4.93	5.25	5.63	6.00	6.53	7.05	7.73	8.40
1 $\frac{1}{4}$ in...	3.30	3.60	3.90	4.20	4.50	4.93	5.25	5.63	6.00	6.53	7.05	7.73	8.40	9.08
1 $\frac{1}{2}$ in...	3.60	3.90	4.20	4.50	4.93	5.25	5.63	6.00	6.53	7.05	7.73	8.40	9.08	9.75
1 $\frac{3}{4}$ in...	3.90	4.20	4.50	4.93	5.25	5.63	6.00	6.53	7.05	7.73	8.40	9.08	9.75	10.43
2 in...	4.20	4.50	4.93	5.25	5.63	6.00	6.53	7.05	7.73	8.40	9.08	9.75	10.43	11.10
2 $\frac{1}{4}$ in...	4.50	4.93	5.25	5.63	6.00	6.53	7.05	7.73	8.40	9.08	9.75	10.43	11.10	11.85
2 $\frac{1}{2}$ in...	4.93	5.25	5.63	6.00	6.53	7.05	7.73	8.40	9.08	9.75	10.43	11.10	11.85	12.60
2 $\frac{3}{4}$ in...	5.25	5.63	6.00	6.53	7.05	7.73	8.40	9.08	9.75	10.43	11.10	11.85	12.60	13.35
3 in...	5.63	6.00	6.53	7.05	7.73	8.40	9.08	9.75	10.43	11.10	11.85	12.60	13.35	14.10
3 $\frac{1}{4}$ in...	6.00	6.53	7.05	7.73	8.40	9.08	9.75	10.43	11.10	11.85	12.60	13.35	14.10	14.85
3 $\frac{1}{2}$ in...	6.53	7.05	7.73	8.40	9.08	9.75	10.43	11.10	11.85	12.60	13.35	14.10	14.85	15.60

## Carving Machine Cutters With $\frac{1}{4}$ Inch Shanks or Smaller

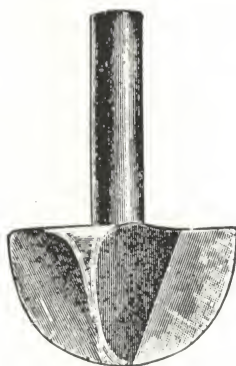
Ogee Bits



Dia.	Price Doz.
$\frac{3}{8}$ "	\$21.00
$\frac{1}{2}$ "	22.00
$\frac{5}{8}$ "	23.00
$\frac{3}{4}$ "	24.00
$\frac{7}{8}$ "	28.00
1"	30.00
$1\frac{1}{4}$ "	33.00
$1\frac{1}{2}$ "	35.00

Give size of Shank and Sketch

Oval Smoother



Dia.	Price Doz.
$\frac{3}{8}$ "	\$20.00
$\frac{1}{2}$ "	22.00
$\frac{3}{4}$ "	24.00
1"	33.00
$1\frac{1}{4}$ "	48.00
$1\frac{1}{2}$ "	50.00
$1\frac{3}{4}$ "	56.00

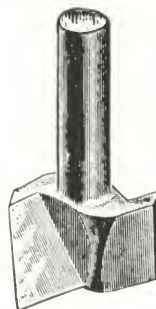
Give size of  
Shank

CHAIR SMOOTHER



$\frac{1}{4}$ " Shanks  
or larger.  
Right or  
left, per  
dozen,  
\$50.00

FLAT SMOOTHER



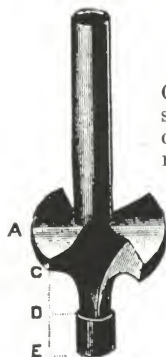
$\frac{1}{4}$ " shank,  $\frac{3}{4}$ "  
diameter, right or  
left.  
Per dozen...\$24.00

VEINING BITS



$\frac{1}{4}$ " shank,  
right or  
left.  
Per dozen,  
\$21.00

JIG SAW BITS



Give size of  
shank and all  
dimensions —  
right or left.

	Price
Dia.	Doz.
$\frac{5}{8}$ "	\$30.00
$\frac{3}{4}$ "	34.00
1"	36.00

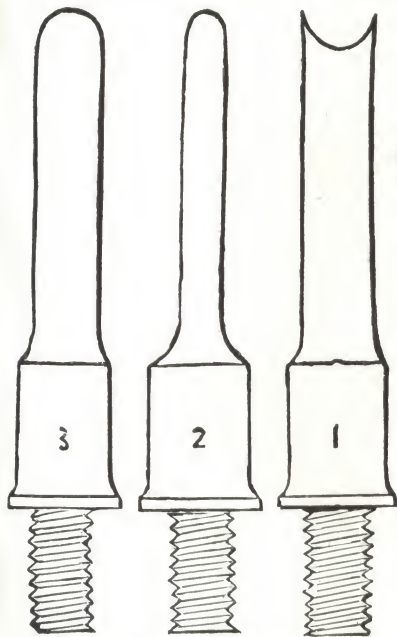
COVE CUTTER  
NO. 42

Send all di-  
mensions.

Dia.	Doz.
$\frac{1}{2}$ "	\$28.00
$\frac{3}{4}$ "	36.00
1"	40.00



## Carving Machine Cutters



**BALL CUTTER OR PUNCH**

Dia.	Length	
3/16	2	\$3.50
1/4	2	4.00
5/16	2	4.25
3/8	2	5.00
7/16	2	5.00
1/2	2	5.75
5/8	2	6.50
3/4	2	7.50

Order by number or send sample of work.  
State diameter and length you want, also name of machine they will be used on.

**Double Pod Bits 1/4" Shank**



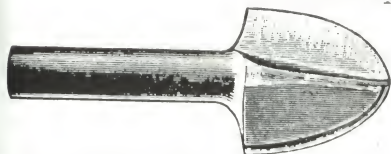
1/4" right or left. Doz.	\$12.00
3/8" right or left. Doz.	15.00

**Grooving Bits**



1/4" right or left. Doz.	\$10.80
--------------------------	---------

**FLUTING BITS---1/4" SHANKS**



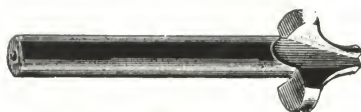
1/2" right or left. Doz.	\$20.00
3/4" right or left. Doz.	24.00



**3/8 Pod Spoon End**



**1/4 Pod Flat End**



**Rounding Over Bit**



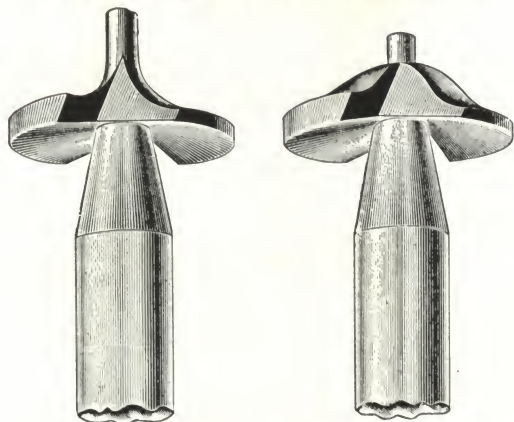
**Double Cutter Bit**

**PRICE PER DOZEN**

1/8" spoon or flat end	\$ 8.00
3/16" " " "	8.75
1/4" " " "	9.00
5/16" " " "	10.00
3/8" " " "	12.00
1/2" " " "	12.00
7/16" rounding over	15.00
3/4" " " "	19.00
13/16" " " "	24.00
3/8" double cutters	21.00
1/2" " " "	22.00
5/8" " " "	23.00
3/4" " " "	24.00
7/8" " " "	25.00



## Rounding-Over Cutters

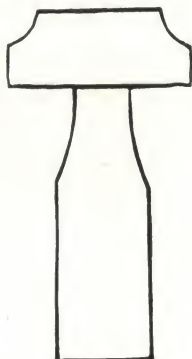


### Price, Each

Diameter	Price
$\frac{3}{4}$ in.....	\$7.50
$\frac{7}{8}$ in.....	8.00
1 in.....	8.75
$1\frac{1}{4}$ in.....	9.25
$1\frac{1}{2}$ in.....	12.75
$1\frac{3}{4}$ in.....	15.00
2 in.....	17.25
$2\frac{1}{4}$ in.....	19.50
$2\frac{1}{2}$ in.....	21.50
$2\frac{3}{4}$ in.....	24.00
3 in.....	27.00
$3\frac{1}{4}$ in.....	30.00

When ordering, please state diameter of cutter, size of shank, also thickness of stock you wish to cut. Send drawing or sample of moulding you want to cut.

## Panel Bits or Surface Cutters



### Net Price List

Diameter of Bit	Each	Diameter of Bit	Each
$\frac{3}{4}$ in....	\$7.50	2 in....	\$17.25
$\frac{7}{8}$ in....	8.00	$2\frac{1}{4}$ in....	19.50
1 in....	8.75	$2\frac{1}{2}$ in....	21.50
$1\frac{1}{4}$ in....	9.25	$2\frac{3}{4}$ in....	24.00
$1\frac{1}{2}$ in....	12.75	3 in....	27.00
$1\frac{3}{4}$ in....	15.00	$3\frac{1}{4}$ in....	30.00

These Cutters are made of solid cast steel. When ordering please state length and diameter of shank. Also send correct drawing or sample of moulding you want to cut.

## Carving Cutters and Points



Round  
Rougher  
\$6.00



Emery  
Spindle  
\$5.00



Extension  
\$4.50



Rougher  
\$4.50



Point  
\$4.00



Ball  
Cutter  
\$8.00



## Machine Countersink Bit No. 112

Made Promptly to  
Order



## Machine Countersink Drill for Wood

No.  
117

No. 117 Countersink  
Beveled Head



No.  
118

No. 118 Countersink,  
Square Head



## Jennings Pattern Extension Lip Machine Bit

This pattern Machine Bit is made for smooth and clean boring, and is popular with manufacturers of furniture and cabinet work, also in sash and door work where extra smooth boring is desired.

We carry in stock regular standard sizes by sixteenths as follows:  $\frac{1}{4}$ -inch to 2 inches, in 4-inch, 5-inch and 6-inch twist.

Made with shank  $\frac{1}{2}$ -inch diameter,  $2\frac{1}{4}$ -inches long, unless otherwise specified.

This Bit was formerly made with medium double screw feed which was too fine thread and easily clogged up so it would not feed properly; therefore, we have adopted a medium single screw feed as illustrated, which feeds in right proportion, most suitable for clean and smooth boring.

We can furnish it with special screw or brad point when desired.

Special sizes made to order.

Price list on following pages.





## Machine Bits

## Standard Price List Per Dozen

Size 16th	6-In. Twist	8-In. Twist	10-In. Twist	12-In. Twist	14-In. Twist	16-In. Twist	18-In. Twist	20-In. Twist	22-In. Twist
4	\$10.80	.....	.....	.....	.....	.....	.....	.....	.....
5	10.80	.....	.....	.....	.....	.....	.....	.....	.....
6	10.80	.....	.....	.....	.....	.....	.....	.....	.....
7	10.80	.....	.....	.....	.....	.....	.....	.....	.....
8	10.80	\$12.96	\$15.12	\$17.28	\$19.44	\$21.60	\$23.76	\$25.92	\$28.08
9	12.00	14.40	16.80	19.20	21.60	24.00	26.40	28.80	31.20
10	13.20	15.84	18.48	21.12	23.76	26.40	29.04	31.68	34.32
11	14.40	17.28	20.16	23.04	25.92	28.80	31.68	34.56	37.44
12	15.60	18.72	21.84	24.96	28.08	31.20	34.32	37.44	40.56
13	16.80	20.16	23.52	26.88	30.24	33.60	36.96	40.32	43.68
14	18.00	21.60	25.20	28.80	32.40	36.00	39.60	43.20	46.80
15	19.20	23.04	26.88	30.72	34.56	38.40	42.24	46.08	49.92
16	20.40	24.48	28.56	32.64	36.72	40.80	44.88	48.96	53.04
17	21.60	25.92	30.24	34.56	38.88	43.20	47.52	51.84	56.16
18	22.80	27.36	31.92	36.48	41.04	45.60	50.16	54.72	59.28
19	24.00	28.80	33.60	38.40	43.20	48.00	52.80	57.60	62.40
20	25.20	30.24	35.28	40.32	45.36	50.40	55.44	60.48	65.52
21	26.40	31.68	36.96	42.24	47.52	52.80	58.08	63.36	68.64
22	27.60	33.12	38.64	44.16	49.68	55.20	60.72	66.24	71.76
23	28.80	34.56	40.32	46.08	51.84	57.60	63.36	69.12	74.88
24	30.00	36.00	42.00	48.00	54.00	60.00	66.00	72.00	78.00
25	31.50	37.80	44.10	50.40	56.70	63.00	69.30	75.60	81.90
26	33.00	39.60	46.20	52.80	59.40	66.00	72.60	79.20	85.80
27	34.50	41.40	48.30	55.20	62.10	69.00	75.90	82.80	89.70
28	36.00	43.20	50.40	57.60	64.80	72.00	79.20	86.40	93.60
29	37.50	45.00	52.50	60.00	67.50	75.00	82.50	90.00	97.50
30	39.00	46.80	54.60	62.40	70.20	78.00	85.80	93.60	101.40
31	40.50	48.60	56.70	64.80	72.90	81.00	89.10	97.20	105.30
32	42.00	50.40	58.80	67.20	75.60	84.00	92.40	100.80	109.20
33	43.80	52.56	61.32	70.08	78.84	87.60	96.36	105.12	113.88
34	45.60	54.72	63.84	72.96	82.08	91.20	100.32	109.44	118.56
35	47.40	56.88	66.36	75.84	85.32	94.80	104.28	113.76	123.24
36	49.20	59.04	68.88	78.72	88.56	98.40	108.24	118.08	127.92
37	51.00	61.20	71.40	81.60	91.80	102.00	112.20	122.40	132.60
38	52.80	63.36	73.92	84.48	95.04	105.60	116.16	126.72	137.28
39	54.60	65.52	76.44	87.36	98.28	109.20	120.12	131.04	141.96
40	56.40	67.68	78.96	90.24	101.52	112.80	124.08	135.36	146.64
42	60.60	72.72	84.84	96.96	109.08	121.20	133.32	145.44	157.56
44	64.80	77.76	90.72	103.68	116.64	129.60	142.56	155.52	168.48
46	69.00	82.80	96.60	110.40	124.20	138.00	151.80	165.60	179.40
48	73.20	87.84	102.48	117.12	131.76	146.40	161.04	175.68	190.32
50	78.00	93.60	109.20	124.80	140.40	156.00	171.60	187.20	202.80
52	82.80	99.36	115.92	132.48	149.04	165.60	182.16	189.72	215.28
54	87.60	105.12	122.64	140.16	157.68	175.20	192.72	210.24	227.76
56	92.40	110.88	129.36	147.84	166.32	184.80	203.28	221.76	240.24

**Wood Drills**

No. 201



No. 201



No. 200



No. 212—Straight Shank



## Machine Drills for Wood, No. 201-F. C.

### Drill Point

This style of drill is recommended for hardwood boring where holes are not very large or deep. These drills have shanks  $2\frac{1}{4}$  inches long by  $\frac{1}{2}$ -inch diameter, unless otherwise specified.

All sizes made to order promptly.

Name complete dimensions.

Add 10 cents additional for each extra inch of twist.

## Machine Drills for Wood, No. 200-F. C.

### Brad Point

This style drill for boring wood works like the ordinary bit except that the twist is made heavier and in a drill pattern. It feeds easily and cuts freely.

It can be run at any desired speed and will not split the wood.

All sizes made to order promptly. Name complete dimensions.

These drills have shanks  $2\frac{1}{4}$  inches by  $\frac{1}{2}$ -inch diameter, unless otherwise ordered.

### Price, Each

Sizes 32nds.	4-inch Twist	6-inch Twist	8-inch Twist	10-inch Twist	Extra for Brad Point
6	\$0.90				\$0.10
7	.90				.15
8	.90				.15
9	.90				.20
10	.90	\$1.20			.20
11	.95	1.25	\$1.55		.20
12	1.00	1.30	1.60	\$1.90	.20
13	1.10	1.40	1.70	2.00	.25
14	1.15	1.45	1.75	2.05	.25
15	1.25	1.55	1.85	2.15	.25
16	1.30	1.60	1.90	2.20	.25
17	1.40	1.70	2.00	2.30	.25
18	1.50	1.80	2.10	2.40	.30
19	1.60	1.92	2.24	2.56	.30
20	1.70	2.04	2.38	2.72	.30
21	1.80	2.16	2.52	2.88	.30
22	1.90	2.28	2.66	3.04	.30
23	2.00	2.40	2.80	3.20	.30
24	2.15	2.57	2.99	3.41	.35
25	2.25	2.69	3.13	3.57	.35
26	2.40	2.88	3.36	3.84	.35
27	2.55	3.05	3.55	4.05	.35
28	2.65	3.17	3.69	4.21	.35
29	2.80	3.36	3.92	4.48	.35
30	2.95	3.53	4.11	4.69	.40
31	3.10	3.72	4.34	4.96	.40
32	3.25	3.89	4.53	5.17	.40
33	3.40	4.08	4.76	5.44	.40
34	3.55	4.25	4.95	5.65	.40
36	3.90	4.68	5.46	6.24	.40
38	4.25	5.09	5.93	6.77	.45
40	4.60	5.52	6.44	7.36	.45
42	5.00	6.00	7.00	8.00	.45
44	5.40	6.48	7.56	8.64	.50
46	5.80	6.96	8.12	9.28	.50
48	6.20	7.44	8.68	9.92	.50

## Combination Countersink, No. 5



(Patented)

### Price of Countersinks Carried in Stock

Other sizes made to order upon application.

Diameter		Price
$\frac{3}{8}$ -inch.....	{ With $\frac{5}{32}$ or $\frac{3}{16}$ Drills .....	\$3.00
$\frac{7}{16}$ " .....		
$\frac{1}{2}$ " .....	" $\frac{3}{16}$ , $\frac{7}{32}$ or $\frac{1}{4}$ Drills.....	3.00
$\frac{9}{16}$ " .....	" $\frac{3}{16}$ , $\frac{7}{32}$ , $\frac{1}{4}$ or $\frac{9}{32}$ Drills.....	3.00
$\frac{5}{8}$ " .....	" $\frac{3}{16}$ , $\frac{7}{32}$ , $\frac{1}{4}$ , $\frac{9}{32}$ or $\frac{5}{16}$ Drills .....	3.50
$\frac{11}{16}$ " .....	" $\frac{7}{32}$ , $\frac{1}{4}$ , $\frac{9}{32}$ or $\frac{5}{16}$ Drills.....	3.70
$\frac{3}{4}$ " .....	" $\frac{1}{4}$ , $\frac{9}{32}$ , $\frac{5}{16}$ or $\frac{11}{32}$ Drills.....	4.20
$\frac{13}{16}$ " .....	" $\frac{9}{32}$ , $\frac{5}{16}$ or $\frac{11}{32}$ Drills .....	4.50
$\frac{7}{8}$ " .....	" $\frac{5}{16}$ , $\frac{11}{32}$ or $\frac{3}{8}$ Drills .....	4.80
1 " .....	" $\frac{5}{16}$ , $\frac{11}{32}$ , $\frac{3}{8}$ or $\frac{7}{16}$ Drills.....	5.30
$1\frac{1}{8}$ " .....	" $\frac{5}{16}$ , $\frac{11}{32}$ , $\frac{3}{8}$ or $\frac{7}{16}$ Drills.....	6.00
$1\frac{1}{4}$ " .....	" $\frac{5}{16}$ , $\frac{11}{32}$ , $\frac{3}{8}$ or $\frac{7}{16}$ Drills.....	7.00
$1\frac{3}{8}$ " .....	" $\frac{5}{16}$ , $\frac{11}{32}$ , $\frac{3}{8}$ , $\frac{7}{16}$ or $\frac{1}{2}$ Drills.....	8.00
$1\frac{1}{2}$ " .....	" $\frac{11}{32}$ , $\frac{3}{8}$ , $\frac{7}{16}$ , $\frac{1}{2}$ or $\frac{9}{16}$ Drills.....	9.50

## Taper Countersink, No. 8



(Patented)

This Countersink is made to countersink for screw heads. The drill runs the entire length and can be adjusted as desired. The shank is slotted to hold drill, the same as countersink No. 5, on top of page. Length of countersink 3 inches, total length of countersink and drill  $4\frac{1}{2}$  inches. The shank is made  $1\frac{1}{2}$  inches long and  $\frac{1}{2}$  inch in diameter, or with the Morse taper shank. Price of Taper countersinks (carried in stock and other sizes made to order) upon application.

$\frac{1}{2}$ -inch diameter, with  $\frac{3}{32}$ ,  $\frac{4}{32}$ ,  $\frac{5}{32}$ ,  $\frac{6}{32}$ ,  $\frac{7}{32}$  or  $\frac{8}{32}$  inch Drills.....\$3 00

$\frac{5}{8}$ -inch diameter, with  $\frac{9}{32}$ ,  $\frac{10}{32}$ ,  $\frac{11}{32}$  or  $\frac{12}{32}$  inch Drills ..... 3.30



## Irwin Machine Bits

Machine bits, as their name indicates, are used in the chucks of power machines. The strength of the Irwin principle is shown in bits that are put under a heavy strain as machine bits are.

**Steel.**—Irwin machine bits are hammer-forged from special analysis steel which is further refined and improved during the Irwin Process. The bits are tempered and drawn especially for service in power machines.



CHUCKBOR

**Stock No. 62-R---A General Purpose Machine Bit**

**Lengths.**—Chuckbor is stocked in five lengths of twist, 4", 6", 8", 10" and 12".

**Stock.**—The five lengths of twist are regularly carried in stock in the sizes shown in the list prices.

**Shank.**—The shank is 2 inches in length and  $\frac{1}{2}$ -inch in diameter ( $2 \times \frac{1}{2}$ ). The price for other dimensions of shanks is special.

**Finish.**—A bright durable polish. The shank is left as it comes from the lathe. The polish is protected when it leaves the factory by a thin coat of oil. Price list same as machine bits, page 103.

## Style 5 Countersink Drills

Made Especially for Style 5 Countersink



Diameter			
$\frac{3}{32}$ , $\frac{1}{8}$ or $\frac{5}{32}$ .....	6 inches		\$0.60
$\frac{3}{16}$ , $\frac{13}{64}$ , $\frac{7}{32}$ , $\frac{15}{64}$ or $\frac{1}{4}$ .....	6 "		.60
$\frac{17}{64}$ or $\frac{9}{32}$ .....	6 "		.70
$\frac{5}{16}$ .....	6 "		.80
$\frac{11}{32}$ .....	6 "		.90
$\frac{3}{8}$ .....	6 "		1.00

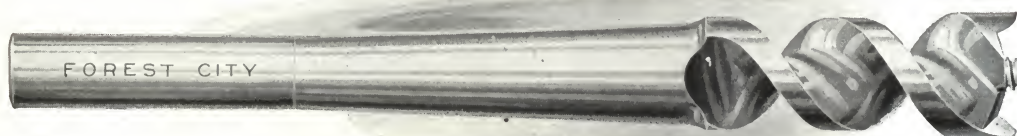
## Style 8 Countersink Drills

Made Especially for Style 8 Taper Countersink



Diameter			
$\frac{3}{32}$ or $\frac{1}{8}$ .....	$4\frac{1}{2}$ inches		\$0.40
$\frac{3}{32}$ , $\frac{3}{16}$ , $\frac{13}{64}$ , $\frac{7}{32}$ , $\frac{15}{64}$ or $\frac{1}{4}$ .....	$4\frac{1}{2}$ "		.40
$\frac{9}{32}$ .....	$4\frac{1}{2}$ "		.50
$\frac{5}{16}$ .....	$4\frac{1}{2}$ "		.60
$\frac{11}{32}$ .....	$4\frac{1}{2}$ "		.70
$\frac{3}{8}$ .....	$4\frac{1}{2}$ "		.80

## Relishing Bit



This style Bit is made with Extension Lip or Jennings Pattern, and is mostly used in Sash Relishing Machines.

Standard sizes made with shank  $\frac{3}{8}$ -inch diameter by  $1\frac{3}{4}$  inches long, balance of shank tapering to diameter of twist, thereby making tool extra stiff and strong. Bit measuring about  $5\frac{1}{4}$  inches over all.

Some Relishing Machines take Bit with  $\frac{1}{2}$ -inch diameter shank.

We carry regular standard sizes in stock, and  $\frac{3}{8}$ -inch diameter shank is furnished unless otherwise specified.

Price list same as Machine Bit price list. Except **Prices are Net.**

## No. 115 Machine Center Bit

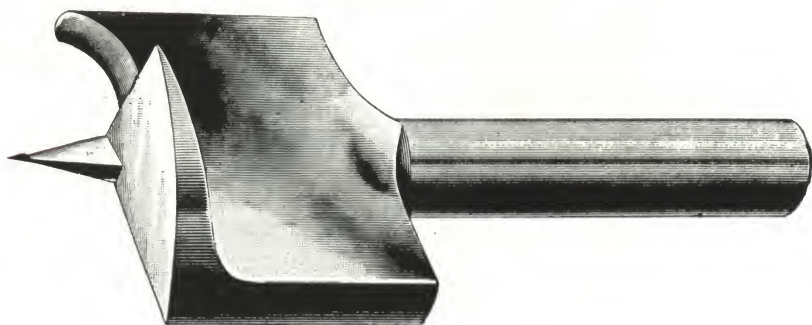
We recommend our Center Bits for all kinds of boring when not so deep that it is necessary to have twist to carry away the chips. These tools work easily and do not burn or bind, and are especially adapted for shallow boring and will not split light stock.

This style Bit, having many excellent boring features is preferred and used by many in the medium and larger sizes.

Regular stock sizes made with shank  $\frac{1}{2}$ -inch diameter,  $2\frac{1}{4}$  inches long, unless otherwise specified.

All sizes listed carried in stock.

Special sizes made to order promptly.



### Standard Price List

Size, inches.....	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Price, each.....	\$1.10	\$1.10	\$1.10	\$1.35	\$1.60	\$1.95	\$2.30	\$2.65	\$3.00
Size, inches.....	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	
Price, each.....	\$3.35	\$3.70	\$4.05	\$4.40	\$5.40	\$6.40	\$7.70	\$9.00	

## Style 7 Side Boring Bit



## Style 3 End Boring Bit



The only genuine patent loose center Boring Bits. Guaranteed to outlast from 12 to 25 of the common solid center bits, as these bits are sharpened and worn clear to the shank. A clean cutting bit made of wear resisting tool steel. Split shank holds screw point firmly in place. Extra points, 20c each.

Standard length 3-inch twist. Shank  $1\frac{1}{2}$  inches long by  $\frac{1}{2}$ -inch diameter. Total length  $4\frac{1}{2}$  inches. Special lengths furnished promptly to order. Also furnished with Morse No. 1 Taper Shank.

### Prices of Boring Bits Carried in Stock

Other sizes made to order upon application.

Diameter,	$\frac{5}{16}$ inch.	List Price, \$2.50
"	$\frac{3}{8}$ "	" " 2.50
"	$\frac{7}{16}$ "	" " 2.50
"	$\frac{1}{2}$ "	" " 2.50
"	$\frac{9}{16}$ "	" " 3.00
"	$\frac{5}{8}$ "	" " 3.50
"	$1\frac{1}{16}$ "	" " 3.70
"	$\frac{3}{4}$ "	" " 4.00
"	$\frac{13}{16}$ "	" " 4.20
"	$\frac{7}{8}$ "	" " 4.50
"	$1\frac{1}{16}$ "	" " 4.70
"	1 "	" " 5.00
"	$1\frac{1}{8}$ "	" " 5.50
"	$1\frac{1}{4}$ "	" " 6.00
"	$1\frac{3}{8}$ "	" " 7.00
"	$1\frac{1}{2}$ "	" " 8.00



## Style 50 Brad Point Boring Bit

Where it is desired to bore a smooth hole through several pieces of stock at once, this bit will be found to do the work properly. Point is removable and can be easily replaced when broken. Standard length, 5 ins. over all. Shank  $\frac{1}{2} \times 4$  ins. long.

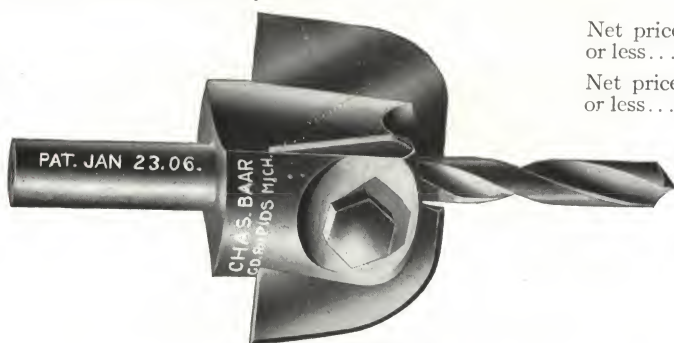
Size	Price	Size	Price	Size	Price
$\frac{5}{8}$	\$2.90	$1\frac{1}{4}$	\$4.90	$2\frac{3}{8}$	\$9.00
$\frac{3}{4}$	3.30	$1\frac{1}{2}$	5.30	$2\frac{1}{2}$	10.00
$\frac{7}{8}$	3.70	$1\frac{3}{4}$	6.00	$2\frac{5}{8}$	10.90
1	4.10	2	7.20	$2\frac{3}{4}$	12.00
$1\frac{1}{8}$	4.50	$2\frac{1}{4}$	8.40	3	14.00



## Barr-Caster Countersink Bit

This Bit is for boring the hole and making the sweep for the caster. It is adaptable for use on any furniture where casters are used. Both holes are made at one operation. This lets the furniture down closer to the floor and makes it look fifty per cent better.

This bit is adjustable for various sizes of casters, cuts end grain wood easily and is easily sharpened and adjusted.



Net price of bit, small size  $2\frac{1}{2}$ " or less.....\$12.00

Net price of bit, piano size  $4\frac{1}{2}$ " or less.....\$20.00

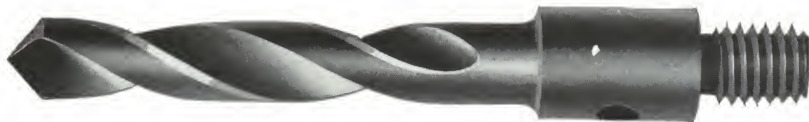
## Style 14 Screw Shank Brad Point Drills



Carried in stock to fit every make of machine on the market, including Nash, Clement, Prybil, American, Valley City and our Standard No. 1, right or left hand. Send sample shank with first order. These are  $4\frac{1}{2}$ " long over all.

Diameter	Each	Diameter	Each
$\frac{1}{4}$ "	\$1.30	$\frac{11}{16}$ "	\$2.50
$\frac{5}{16}$ "	1.30	$\frac{3}{4}$ "	2.80
$\frac{3}{8}$ "	1.40	$\frac{13}{16}$ "	3.20
$\frac{7}{16}$ "	1.50	$\frac{7}{8}$ "	3.50
$\frac{1}{2}$ "	1.70	$\frac{15}{16}$ "	3.80
$\frac{9}{16}$ "	1.90	1"	4.30
$\frac{5}{8}$ "	2.20	All $4\frac{1}{2}$ " long.	

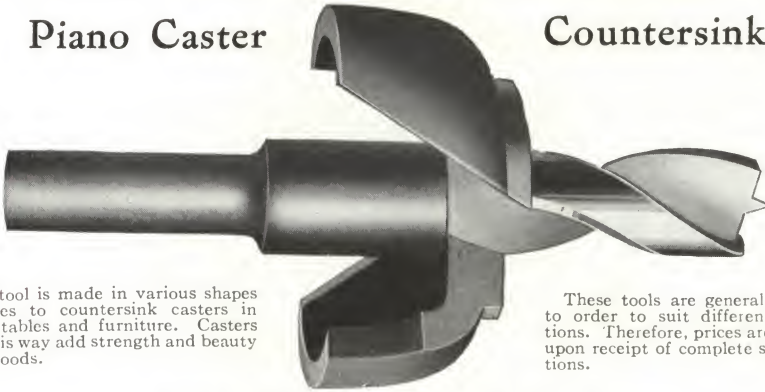
## Style 12 Screw Shank Drill Point Drills



Carried in stock to fit every make of machine on the market including Nash, Clement, American, Prybil, Valley City and our Standard No. 1. Send sample shank with first order. Right or left hand. These are  $4\frac{1}{2}$ " long over all.

Diameter	Per Dozen	Diameter	Per Dozen
$\frac{1}{4}$ "	\$14.40	$\frac{1}{2}$ "	\$24.00
$\frac{5}{16}$ "	15.60	$\frac{9}{16}$ "	28.00
$\frac{3}{8}$ "	18.00	$\frac{5}{8}$ "	30.00
$\frac{7}{16}$ "	20.40	All $4\frac{1}{2}$ " long.	

## Piano Caster



This tool is made in various shapes and sizes to countersink casters in pianos, tables and furniture. Casters set in this way add strength and beauty to the goods.

## Countersink

These tools are generally made to order to suit different conditions. Therefore, prices are quoted upon receipt of complete specifications.

## Spiral Plug Cutter, No. 600

The Best and Most Practical Plug Cutting Tool Ever Placed on the Market.

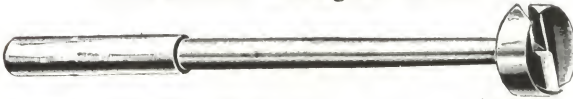


This cutter is for cutting wooden plugs for plugging screw heads. It is the best Plug Cutter on the market, and is made to fit our combined countersink and boring bits.

## PRICE LIST:

Size	Each	Size	Each
$\frac{3}{8}$ "	\$6.00	$\frac{15}{16}$ "	\$10.50
$\frac{7}{16}$ "	6.00	1"	11.50
$\frac{1}{2}$ "	6.00	$1\frac{1}{8}$ "	12.50
$\frac{9}{16}$ "	6.00	$1\frac{1}{4}$ "	13.50
$\frac{5}{8}$ "	7.00	$1\frac{3}{8}$ "	14.50
$\frac{11}{16}$ "	7.50	$1\frac{1}{2}$ "	16.00
$\frac{3}{4}$ "	8.00	$1\frac{5}{8}$ "	18.00
$\frac{13}{16}$ "	8.50	$1\frac{7}{8}$ "	19.00
$\frac{7}{8}$ "	9.00	2"	22.00

## Forstner Auger Bits



The Forstner Labor-Saving Auger Bit, unlike other bits, is guided by its Circular Rim instead of its center, consequently it will bore any arc of a circle, and can be guided in any direction regardless of grain or knots, leaving a true polished surface.

Machine Bit						SIZES				
Size	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	Size	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$
Brace, each...	\$0.90	\$0.90	\$1.00	\$1.00	\$1.05	Brace, each...	\$1.95	\$2.20	\$2.20	\$2.35
Machine, each..	1.10	1.10	1.20	1.20	1.25	Machine, each..	2.15	2.40	2.40	2.55
Size	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	Size	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$
Brace, each...	\$1.15	\$1.15	\$1.20	\$1.30	\$1.40	Brace, each...	\$3.00	\$3.10	\$3.35	\$3.60
Machine, each..	1.25	1.35	1.40	1.50	1.60	Machine, each..	3.20	3.30	3.55	3.80
Size	$\frac{7}{8}$	$\frac{13}{16}$	1	$1\frac{1}{16}$	$1\frac{1}{8}$	Size	2	2	2	2
Brace, each...	\$1.40	\$1.70	\$1.70	\$1.80	\$1.80	Brace, each...	\$3.00	\$3.10	\$3.35	\$3.60
Machine, each..	1.60	1.90	1.90	2.00	2.00	Machine, each..	3.20	3.30	3.55	3.80

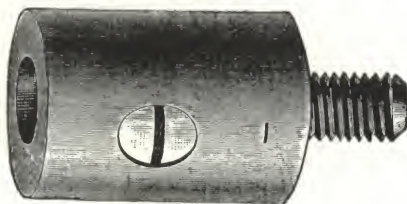
SIZES	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3
Machine.....	\$12.00	\$14.00	\$16.00	\$18.00	\$20.00	\$22.00	\$24.00	\$26.00

No. 149 Multi  
Spur Bits

SAME PRICE AS FORSTNER BITS



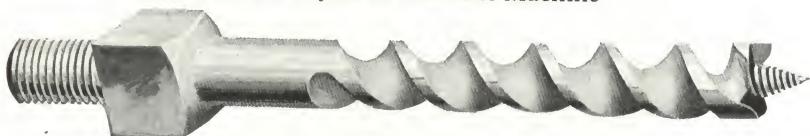
## Chuck for Pryble Boring Machine



This Chuck has a  $\frac{1}{2}$ -inch hole which enables anyone to use bits with a  $\frac{1}{2}$ -inch shank in the Pryble Boring Machine. Price, \$2.50.

## Screw Shank Dowel Bits

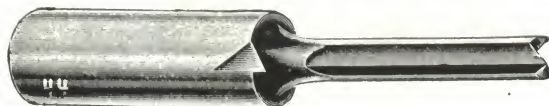
Will Fit Pryble or Clement Machine



Pryble Machine Shank  $\frac{5}{16}$ -inch diameter, No. 20 thread.  
Clement Machine Shank  $\frac{7}{16}$ -inch diameter, No. 14 thread.

Sizes in 16ths.....	3	4	5	6	7	8	9
Price.....per dozen	\$10.80	\$10.80	\$10.80	\$10.80	\$10.80	\$10.80	\$12.00
Sizes in 16ths.....	10	11	12	13	14	15	16
Price.....per dozen	\$13.20	\$14.40	\$15.60	\$16.80	\$18.00	\$19.20	\$20.40

## Router Bits Style 44



Above illustrated Router Bit is regularly used in Sash, Door and Blind Relishing and Mortising Machines.

Made with regular shank  $\frac{1}{2}$ -inch diameter by  $1\frac{1}{2}$  inches long. Twist or flute  $1\frac{1}{2}$  inches long. Tool measuring 3 inches over all.

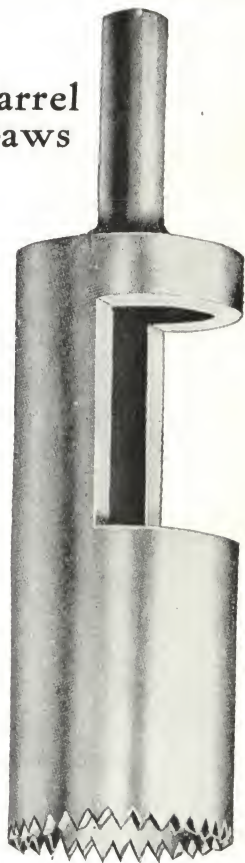
We can also furnish above patterns left hand when desired.

Standard sizes carried in stock.

Size	Each
$\frac{4}{16}$ inch.....	\$0.90
$\frac{5}{16}$ ".....	.90
$\frac{6}{16}$ ".....	1.00
$\frac{7}{16}$ ".....	1.20
$\frac{8}{16}$ ".....	1.40
$\frac{9}{16}$ ".....	1.80
$\frac{10}{16}$ ".....	2.00
$\frac{12}{16}$ ".....	2.30
$\frac{14}{16}$ ".....	2.60
$\frac{16}{16}$ ".....	3.00



## Barrel Saws



These saws are usually used to bore the corners from chairs, tables, etc., but may also be used to bore where a bit with center cannot be used to advantage.

Standard sizes have shanks  $\frac{1}{2}$ -inch diameter by 2 inches long. Length of barrel is 6 inches.

Made either with or without opening.

Size	Price, Each
1 inch.....	\$10.50
1 $\frac{1}{8}$ inch.....	11.50
1 $\frac{1}{4}$ inch.....	13.50
1 $\frac{3}{8}$ inch.....	14.50
1 $\frac{1}{2}$ inch.....	16.00
1 $\frac{5}{8}$ inch.....	17.50
1 $\frac{3}{4}$ inch.....	19.00
1 $\frac{7}{8}$ inch.....	21.00
2 inch.....	24.00

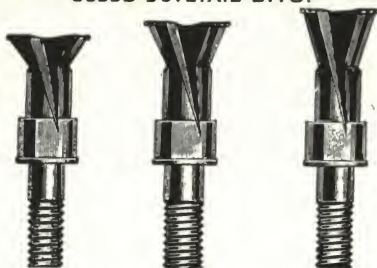
We can furnish Dovetail Cutters of any other size than shown above.

Price, according to size wanted. In ordering state size dovetail you want to cut, size of shank. If wanted with screw or straight shank, Also give maker's name of machine bits are to fit or send sample cutter.

## Dovetail Cutters

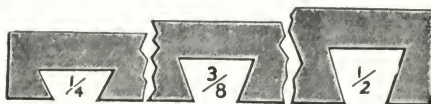


DODD'S DOVETAIL BITS.



These Dovetail Cutters are made of special high grade tool steel with screw shank to fit Dodd's Patent Gang Dovetailer.

	Each
Up to $\frac{1}{2}$ inch .....	\$1.00
$\frac{9}{16}$ and $\frac{5}{8}$ .....	1.10
$\frac{11}{16}$ and $\frac{3}{4}$ .....	1.25
$\frac{13}{16}$ and $\frac{7}{8}$ .....	1.50
$\frac{15}{16}$ and 1 .....	1.75



These Dovetail Cutters are made of same high grade tool steel as the screw shank, only they have  $\frac{1}{2}$  inch diameter straight shanks.

	Each
Up to $\frac{1}{2}$ inch .....	\$1.75
$\frac{9}{16}$ and $\frac{5}{8}$ .....	1.75
$\frac{11}{16}$ and $\frac{3}{4}$ .....	2.00
$\frac{13}{16}$ and $\frac{7}{8}$ .....	2.25
$\frac{15}{16}$ and 1 .....	2.50



### Enterprise No. 404 Sash Pulley Bit

This particular style Router Bit is used in pairs, right and left hand, in boring sash pulley pockets. The twist is  $2\frac{3}{4}$  inches long, and shank  $2\frac{1}{2}$  inches long, threaded. Tool measuring  $5\frac{1}{4}$  inches over all.

All sizes listed are carried in stock.

	Price List				
Size inches.....	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Price, each.....	\$3.00	\$3.00	\$3.00	\$3.00	\$3.50

### Smith & Phillips Sash Pulley Bit

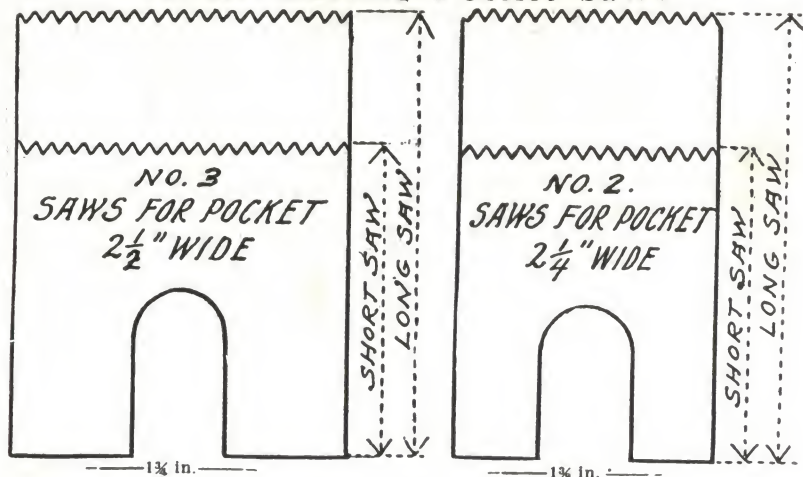


Above style Router Bit is used in Window Frame Machines, specially built for boring and mortising sash pulley pockets. It is made with special clearance, and the cutting edges suitable for fast and clean boring. The flute or twist is about  $2\frac{3}{4}$  inches long, and the tapered shank, including threaded part, is about 4 inches long, tool measuring  $6\frac{3}{4}$  inches over all.

This particular style tool is also furnished with straight shank,  $\frac{5}{8}$  inch diameter by  $2\frac{1}{2}$  inches long. Always specify style of shank wanted.

	Price List										
Size, Inches....	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	1	$1\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{1}{4}$	$1\frac{3}{8}$
Price, Each....	\$5.00	\$5.00	\$5.00	\$5.50	\$5.50	\$5.50	\$6.00	\$6.00	\$6.00	\$6.00	\$7.00

### Cross Cutting Pocket Saws



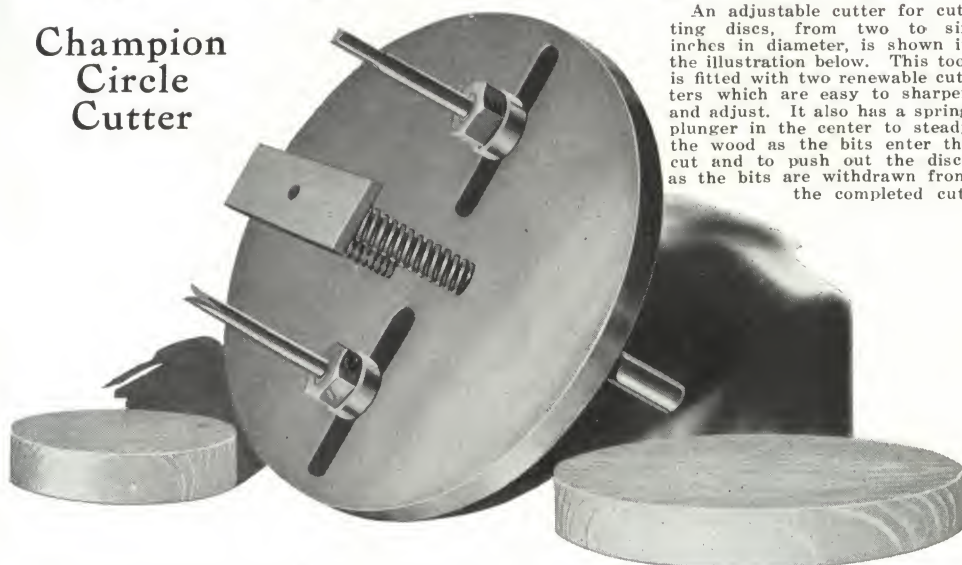
Price, Each, 40c



**Special  
Cutters  
to  
Order**



## Champion Circle Cutter



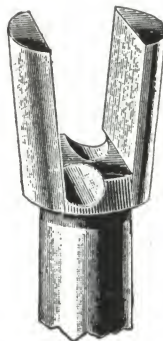
An adjustable cutter for cutting discs, from two to six inches in diameter, is shown in the illustration below. This tool is fitted with two renewable cutters which are easy to sharpen and adjust. It also has a spring plunger in the center to steady the wood as the bits enter the cut and to push out the discs as the bits are withdrawn from the completed cut.

Champion Circle Cutter,  $\frac{1}{2}$ " shank adjusts from 2" to 6".....\$34.00

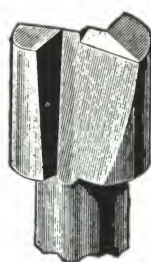
## Stair Router Bits

Diameter, $\frac{3}{4}$ inch.....	\$3.50
Diameter, $\frac{7}{8}$ inch.....	4.00
Diameter, 1 inch.....	4.50
Diameter, $1\frac{1}{8}$ inch.....	5.00
Diameter, $1\frac{1}{4}$ inch.....	6.50

When ordering state length of Bit, diameter at top and bottom, also if to run with guide collar and full description of shank.



**Open Type**



**Z Shape**



## Multiple Bits for Pulley Mortising



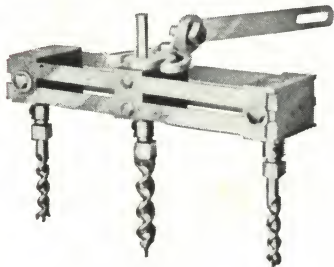
No. 3 TRIPLE BIT



Illustration Shows Complete Boring Operation Done With Multiple Bits on Boring Machine.

- No. 11 Triple Bit. Bores three 1" holes;  $\frac{3}{4}$ " centers. For G. R. pulleys Nos. 9, 109, 7 and 107. Price.....\$16.00
- No. 12 Quad Bit. Bores four  $\frac{1}{8}$ " holes;  $\frac{5}{8}$ " centers. For G. R. pulleys Nos. 10, 110, 8 and 108. Price.....\$16.00
- No. 103, Quint Bit. Bores five 1" holes;  $\frac{3}{4}$ " centers. For G. R. pulleys Nos. 16 and 17. Price.....\$24.00
- No. 105 Quad Bit. Bores four  $\frac{1}{8}$ " holes;  $\frac{1}{4}$ " centers. For G. R. pulleys Nos. 5 and 105. Price.....\$16.00

### ADJUSTABLE MULTIPLE STRAIGHT LINE BORING HEAD

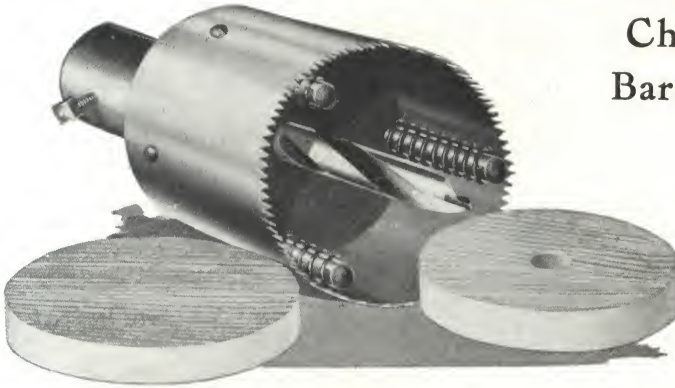


This adjustable multiple boring head is especially recommended where there is need for greater variation in the center to center spacing of bits. Can be mounted in a position parallel to the guide of boring machine table, or angled to right or to left by means of the adjustment shown. Closest center to center spacing of bits is  $1\frac{1}{4}$ , the longest between bits running at the extreme ends of head is 12 inches. Number of spindles provided in different heads is from 3 to 6. Try one of these heads on your boring machine. It has been developed to fill a specific need.

#### Prices as follows:

Frame .....\$20.00  
Spindles, each..... 10.00

Bits extra, price on application



## Champion Barrel Saw

For cutting standard size holes or wood discs in quantities, no tool can equal the cylinder saw which we have designed especially for this class of work. This tool finds great favor in factories that manufacture core stock, casket woodwork, toys, etc. In the former establishments it serves as a knot hole or plug cutter. Two saws of slightly different diameter are required, one for cutting the holes (to remove bad places) and another slightly larger to cut sound discs with which to plug holes cut to remove defective spots in core plates or casket parts.

These saws can be supplied with or without a center bit for center boring the discs as they are cut. For cutting toy wheels, the center bit is of course used in connection with the cylinder saw. Both types of cylinder saws are fitted with a spring plunger on the inside to push out the discs as the tool is withdrawn from the completed cut.

### Prices

3-inch barrel saw with automatic throwout spring	\$38.00
3 ½-inch barrel saw with automatic throwout spring	44.00
4-inch barrel saw with automatic throwout spring	44.00
4 ½-inch barrel saw with automatic throwout spring	46.00
5-inch barrel saw with automatic throwout spring	46.00
5 ½-inch barrel saw with automatic throwout spring	48.00
6-inch barrel saw with automatic throwout spring	50.00
7-inch barrel saw with automatic throwout spring	60.00
8-inch barrel saw with automatic throwout spring	70.00
9-inch barrel saw with automatic throwout spring	80.00
10-inch barrel saw with automatic throwout spring	90.00

When ordering saws give following information: Dia. of shank, thickness of lumber used on, what machine used on, kind of lumber cut, used for cutting wheels or holes, size of wheel or holes. If used for wheels, is saw to have center drill? What size?

## The New "Clean Cut" Barrel Saw

Same prices as above

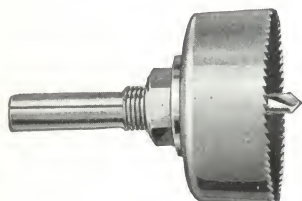


## Black and Decker Hole Saws

### For Cutting Clean Round Holes

In any material which can be cut with a hack saw

These saws while specially adapted for metal, can also be used for wood. Being only 1-inch deep, the hole saws will not cut through wood over  $\frac{1}{4}$ -inch in thickness.



#### (HOLE SAWS ONLY) (Without Mandrels)

Cat No.	Saw Size	Use with Mandrel No.	Price
00906.....	$\frac{3}{4}$ "	00903	\$3.00
00908.....	$\frac{7}{8}$ "	"	"
00910.....	1"	"	"
00912.....	$1\frac{1}{8}$ "	"	"
00911.....	$1\frac{1}{4}$ "	00904	"
00913.....	$1\frac{3}{8}$ "	"	"
00914.....	$1\frac{1}{2}$ "	"	"
00915.....	$1\frac{5}{8}$ "	"	4.00
00916.....	1 $\frac{3}{4}$ "	"	"
00917.....	$1\frac{7}{8}$ "	"	"
00918.....	2"	"	"
00920.....	$2\frac{1}{8}$ "	"	"
00922.....	$2\frac{1}{4}$ "	"	5.00
00921.....	$2\frac{3}{8}$ "	"	"
0092.....	$2\frac{1}{2}$ "	"	"
00924.....	$2\frac{5}{8}$ "	"	"
00925.....	$2\frac{3}{4}$ "	"	"
00927.....	$2\frac{7}{8}$ "	"	"
00926.....	3"	"	"
00928.....	$3\frac{1}{2}$ "	"	"

#### MANDRELS

00903—Mandrel with pilot drill (for $\frac{3}{4}$ " to $1\frac{1}{8}$ " Saws).....	\$3.00
00904—Mandrel with pilot drill (for $1\frac{1}{4}$ " to $3\frac{1}{2}$ " Saws).....	3.50

Designed for use with Black & Decker Portable Electric Drills  
1/2-inch size and larger.

Made of the finest quality saw steel, carefully hardened, and strong and durable. Mandrel automatically holds a  $\frac{1}{4}$ -inch twist drill which drills the pilot hole to serve as a guide for the saw. Saws can be quickly and easily changed on mandrels. Especially useful for cutting round holes up to  $3\frac{1}{2}$  inches in diameter in iron, steel, slate, composition board, etc. An indispensable tool for electrical contractors, plumbers, steamfitters and builders.

## Goodell Drill Chucks

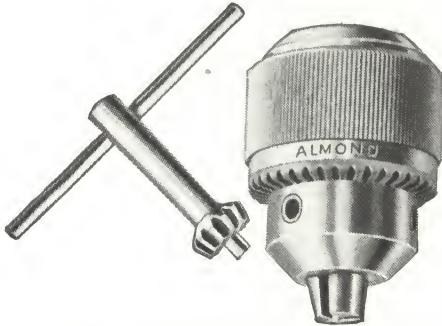


No. 14	0 to $\frac{5}{32}$ inch, each.....	\$2.50
No. 15	0 to $\frac{1}{4}$ inch, each.....	3.00
No. 15 $\frac{1}{2}$	0 to $\frac{3}{8}$ inch, each.....	4.00
No. 16	0 to $\frac{1}{2}$ inch, each.....	5.00



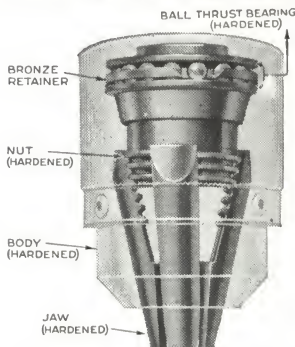
## Drill Chucks

### DRILL CHUCKS Almond Geared Nut



No.	Cap. Ins.	Approx. Wgt., Lbs.	Diam. Ins.	Lgth. Ins.	Each
50	0- $\frac{3}{16}$	$\frac{1}{4}$	1 $\frac{1}{16}$	1 $\frac{1}{2}$	\$4.50
65	0- $\frac{1}{4}$	$\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{3}{4}$	4.50
7	0- $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{7}{8}$	2 $\frac{1}{4}$	5.50
39	0- $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	2 $\frac{5}{16}$	8.00
88	$\frac{9}{16}$ - $\frac{5}{8}$	2	2 $\frac{3}{8}$	2 $\frac{5}{8}$	8.00
109	$\frac{1}{8}$ - $\frac{3}{4}$	3	2 $\frac{1}{2}$	3 $\frac{3}{8}$	10.00
111	$\frac{3}{8}$ -1	5	2 $\frac{1}{2}$	4 $\frac{1}{4}$	12.00

### DRILL CHUCKS Almond Key-less Ball Bearing



No.	Cap. Ins.	Approx. Wgt. Lbs.	Diam. Ins.	Lgth. Ins.	Each
K-65	0- $\frac{1}{4}$	$\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{7}{8}$	\$6.50
K-21	0- $\frac{5}{16}$	$\frac{3}{4}$	1 $\frac{9}{16}$	2 $\frac{1}{4}$	7.50
K-73	0- $\frac{3}{8}$	1 $\frac{1}{4}$	1 $\frac{7}{8}$	2 $\frac{3}{8}$	7.50
K-98	0- $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	3	10.00
K-4	0- $\frac{5}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{8}$	3	11.00

### DRILL CHUCKS

#### Almond Geared Nut

These Chucks are intended for use on Machine Tools and for General Manufacturing purposes.

Geared Teeth on a Tool Steel Nut meshing with a Tool Steel Pinion of large diameter give a direct drive with increased tightening power.

It is accurate, well balanced, powerful and easily operated.

### DRILL CHUCKS

#### Almond Key-less Ball Bearing

"KEY-LESS"—The Operator merely closes the Chuck by hand and as he drills the grip on the Drill increases the proportion to the drilling load.

"HAND OPERATED"—The Drill is released by hand with a quick snap of the Chuck Body in direction of arrow.

### DRILL CHUCKS

#### For Electric and Pneumatic Drills

ALMOND Key-Less Ball Bearing, or the Standard Geared Nut Drill Chuck can be furnished for every Make of Electric and Pneumatic Drill.

In ordering Replacements advise Make, Model and Capacity. Price is governed by the Capacity. Use above List Prices at left.

## Almond Drill Chuck Arbors

Almond Arbors are made not only to fit Almond Chucks but all makes of Drill Chucks.

In specifying state simply Number of Morse Taper, or Style of Shank and Make of Drill Chuck; together with Capacity of Chuck which Arbor is to fit.

Morse Taper	Price, Each	Straight Shank
No. 1 and 2.....	\$1.00	4 $\frac{1}{2}$ " Long— $\frac{1}{2}$ , $\frac{3}{4}$ , 41/64 or 1" Diameter
No. 3.....	\$1.50	For $\frac{3}{4}$ " and Less Capacity
No. 4.....	1.00	Chucks, \$1.00
No. 5.....	2.50	$\frac{1}{2}$ to 1", \$1.50

# CARVING TOOLS

Buck Brothers Trade Mark  
Is a Guarantee  
of Quality

Each Tool  
Is Handled and Sharpened  
Ready for Use

We endeavor to carry all styles and sizes listed on this page for  
immediate delivery

	FIRMERS	No 1	Firmer Chisel	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.35	\$1.35	\$1.35	\$1.35
	CORNER FIRMER	" 2	Corner Chisel	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.40	\$1.40	\$1.40	\$1.40
		" 4	Straight Gouge	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.50	\$1.50	\$1.50	\$1.50
		" 7	Straight Gouge	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.50	\$1.50	\$1.50	\$1.50
		" 9	Straight Gouge	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.60	\$1.60	\$1.60	\$1.60
		" 11	Straight Gouge	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.80	\$1.80	\$1.80	\$1.80
		" 14	Long Bent Gouge	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.80	\$1.80	\$1.80	\$1.80
		" 17	Long Bent Gouge	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.80	\$1.80	\$1.80	\$1.80
		" 19	Long Bent Gouge	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.80	\$1.80	\$1.80	\$1.80
	BENT CHISELS	No 21	Front Bent Chisel	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.70	\$1.70	\$1.70	\$1.70
	RIGHT CORNER	" 22	Right Skew Chisel	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.75	\$1.75	\$1.75	\$1.75
	LEFT CORNER	" 23	Left Skew Chisel	Size, in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
				Each	\$1.80	\$1.80	\$1.80	\$1.80

Both NUMBER AND SIZE must be given when ordering.

All Prices on this page are Net List

## CARVING TOOLS

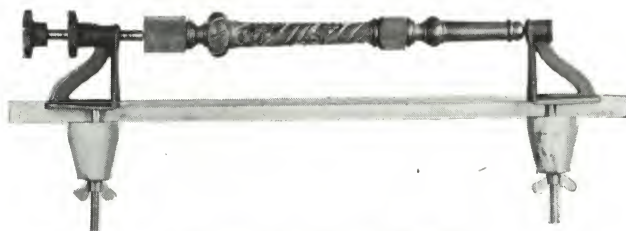
Buck Brothers Trade Mark  
Is a Guarantee  
of Quality

Each Tool  
Is Handled and Sharpened  
Ready for Use

We endeavor to carry all styles and sizes listed on this page for  
immediate delivery.

		Front Bent Gouge	Size, in. $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ Each \$1.80 \$1.80 \$1.80 \$1.80
		Front Bent Gouge	Size, in. $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ Each \$1.80 \$1.80 \$1.80 \$1.80
		Front Bent Gouge	Size, in. $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ Each \$1.80 \$1.80 \$1.80 \$1.80
		Front Bent Gouge	Size, in. $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ Each \$1.90 \$1.90 \$1.90 \$1.90
		Back Bent Gouge	Size, in. $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ Each \$1.80 \$1.80 \$1.80 \$1.80
		Back Bent Gouge	Size, in. $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ Each \$1.80 \$1.80 \$1.80 \$1.80
		Parting Tool	Size, in. $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ Each \$2.60 \$2.60 \$2.60 \$2.60
		Parting Tool	Size, in. $\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ Each \$2.00 \$2.00 \$2.00 \$2.00

## Hand Carvers Dividing Heads



## A New Dividing Head!

For hand carvers. Adjustable to hold any length work. Stays set and holds work rigid. \$8.00 per set, net.



## Champion Turning Chisel



Size .....	$\frac{1}{8}$ "	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "
Each .....	.60	.65	.70	.75	.85	1.00
Size .....	$\frac{7}{8}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2"
Each .....	1.00	1.10	1.25	1.50	2.00	2.50

## Champion Turning Gouge



Size .....	$\frac{1}{8}$ "	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "
Each .....	1.00	1.00	1.00	1.25	1.50	2.00
Size .....	$\frac{7}{8}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2"
Each .....	2.25	2.50	2.75	3.00	3.25	3.50

## Champion Parting Tool



Size .....	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "
Each .....	1.00	1.25	1.50

## Turners' Hustler Chisels



Size .....	$\frac{1}{8}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"
Each .....	1.50	1.50	1.50	1.50	1.50	2.00	2.00	2.50	3.00

## Chisel Calipers for Hand Turning

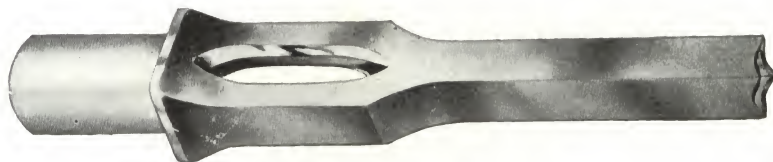


The hand tool illustrated above is intended for use with the common turning lathe. It combines the offices of the calipers with the chisel, and not only greatly facilitates the work, but renders its execution more perfect than can be accomplished by means of the ordinary tools. It is made to receive cutters of various forms for calipering in the angle on the mills or on any portion of the pattern desired. Price.....\$2.50

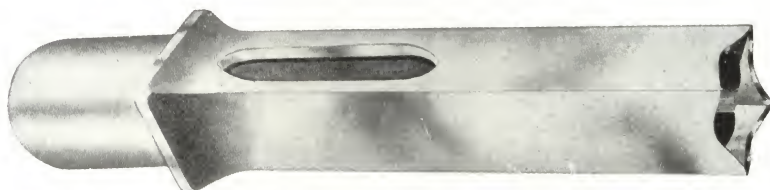
## Mortising Chisels



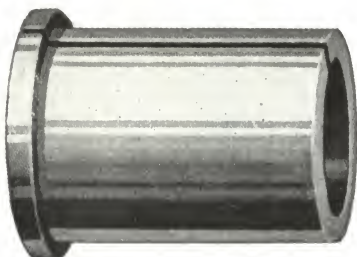
**Short Hollow Chisels**  
For Sash and Door Mortisers



**Reinforced Mortising Chisel**  
For Medium and Large Mortisers



**Regular and Special Long Mortising Chisel**  
Use in both Medium and Heavy Sized Machines



**No. 1 COLLAR.** Price, each, \$3.50.



**No. 2 COLLAR.** Price, each, \$2.50

## Short Hollow Mortising Chisels and Bits

We can furnish Hollow Chisels to fit any make of Hollow Mortising Machine

### SHORT CHISELS FOR SMALL MORTISES

Blades 4 inches long

#### HOLLOW CHISELS

Size	4-inch Blade
$\frac{1}{4} \times \frac{1}{4}$ in.....	\$4.40
$\frac{5}{16} \times \frac{5}{16}$ in.....	4.40
$\frac{5}{16} \times \frac{1}{4}$ in.....	4.40
$\frac{3}{8} \times \frac{3}{8}$ in.....	4.40
$\frac{3}{8} \times \frac{5}{16}$ in.....	4.95
$\frac{7}{16} \times \frac{7}{16}$ in.....	4.80
$\frac{7}{16} \times \frac{3}{8}$ in.....	4.95
$\frac{1}{2} \times \frac{1}{2}$ in.....	5.25
$\frac{1}{2} \times \frac{7}{16}$ in.....	5.40
$\frac{1}{2} \times \frac{3}{8}$ in.....	5.15
$\frac{9}{16} \times \frac{9}{16}$ in.....	5.65
$\frac{9}{16} \times \frac{1}{2}$ in.....	6.05
$\frac{9}{16} \times \frac{7}{16}$ in.....	5.60
$\frac{9}{16} \times \frac{3}{8}$ in.....	5.40
$\frac{5}{8} \times \frac{5}{8}$ in.....	6.05
$\frac{5}{8} \times \frac{1}{2}$ in.....	6.00
$\frac{5}{8} \times \frac{7}{16}$ in.....	5.80
$\frac{11}{16} \times \frac{11}{16}$ in.....	6.50
$\frac{11}{16} \times \frac{1}{2}$ in.....	7.00
$\frac{3}{4} \times \frac{3}{4}$ in.....	6.90
$\frac{3}{4} \times \frac{1}{2}$ in.....	6.40
$\frac{13}{16} \times \frac{13}{16}$ in.....	7.35

#### HOLLOW CHISEL BITS

Size	6-inch Twist
$\frac{1}{4}$ in.....	\$1.20
$\frac{5}{16}$ in.....	1.20
$\frac{3}{8}$ in.....	1.20
$\frac{7}{16}$ in.....	1.20
$\frac{1}{2}$ in.....	1.20
$\frac{9}{16}$ in.....	1.35
$\frac{5}{8}$ in.....	1.50
$\frac{11}{16}$ in.....	1.70
$\frac{3}{4}$ in.....	1.80
$\frac{13}{16}$ in.....	1.95

### HOW TO GET BEST RESULTS FROM HOLLOW CHISELS AND BITS

Throw away worn out bits not in first class condition. The use of such bits causes breakage of the hollow chisel. Head of bit must not rub against cutting edge of chisel. Eliminate back play in bit spindle to preserve proper adjustment. See that mortiser is in good working condition. This is essential. Check up your machine and see that it is running at the proper speed. A loose belt on bit spindle will slow down bit and cause clogging. Sharpen with hand file, using new chisel or new bit as guide. Do not file on outside as this destroys size and clearance. Avoid the use of oil, as chips will gum and produce clogging.

### SHARPENING HOLLOW CHISELS

Use round piece of fine emery stick and have one end tapered to point. This point will fit into opening of chisel and a fine cutting edge is the result. These emerys may be used in chuck of boring machine or in our electric hand shaper. The sharp corners of chisel may be touched up with fine square file.



## Medium and Long Hollow Mortising Chisels and Bits

We can furnish Hollow Chisels to fit any make of Hollow Mortising Machine.

Medium Hollow Chisels, 6½-inch Blade. Long Hollow Chisels, 8-inch Blade.

### HOLLOW CHISELS

#### 6½-inch Blade

Size	
3/8 in.	\$ 7.20
7/16 in.	7.60
1/2 in.	8.00
9/16 in.	8.40
5/8 in.	8.80
11/16 in.	9.20
3/4 in.	9.60
13/16 in.	10.05
7/8 in.	10.45
15/16 in.	10.90
1 in.	11.30
1 1/8 in.	12.40
1 1/4 in.	13.40
1 3/8 in.	14.60
1 1/2 in.	15.80
1 5/8 in.	17.30
1 3/4 in.	18.70
1 7/8 in.	20.40
2 in.	22.00
2 1/8 in.	24.10
2 1/4 in.	26.20
2 1/2 in.	31.10
2 3/4 in.	43.50
3 in.	43.50

### HOLLOW CHISEL BITS

Size	9-inch Twist	10-inch Twist
3/8 in.	\$1.50	\$ 1.75
7/16 in.	1.50	1.75
1/2 in.	1.50	1.75
9/16 in.	1.60	1.90
5/8 in.	1.75	2.00
11/16 in.	1.85	2.20
3/4 in.	2.00	2.40
13/16 in.	2.20	2.60
7/8 in.	2.40	2.80
15/16 in.	2.60	3.00
1 in.	2.75	3.25
1 1/8 in.	3.00	3.50
1 1/4 in.	3.30	3.70
1 3/8 in.	3.65	3.90
1 1/2 in.	3.90	4.25
1 5/8 in.		4.50
1 3/4 in.		4.80
1 7/8 in.		5.25
2 in.		5.70
2 1/8 in.		6.20
2 1/4 in.		7.25
2 1/2 in.		8.50
2 3/4 in.		10.00
3 in.		12.00

### HOLLOW CHISELS

#### 8-inch Blade

Size	
5/8 in.	\$10.35
3/4 in.	10.35
13/16 in.	10.85
7/8 in.	11.30
15/16 in.	12.25
1 in.	12.25
1 1/8 in.	13.50
1 1/4 in.	14.60
1 3/8 in.	16.00
1 1/2 in.	17.40
1 5/8 in.	19.00
1 3/4 in.	20.50
1 7/8 in.	22.30
2 in.	24.00
2 1/8 in.	26.30
2 1/4 in.	28.50
2 1/2 in.	33.75
2 3/4 in.	40.25
3 in.	46.75

### HOLLOW CHISEL BITS

Size	11-inch Twist
5/8 in.	\$ 2.25
3/4 in.	2.50
13/16 in.	2.70
7/8 in.	2.90
15/16 in.	3.20
1 in.	3.50
1 1/8 in.	3.75
1 1/4 in.	4.00
1 3/8 in.	4.25
1 1/2 in.	4.65
1 5/8 in.	5.00
1 3/4 in.	5.50
1 7/8 in.	6.00
2 in.	6.75
2 1/8 in.	7.50
2 1/4 in.	9.00
2 1/2 in.	10.00
2 3/4 in.	12.00
3 in.	13.00

## New Style Oblong Hollow Chisel

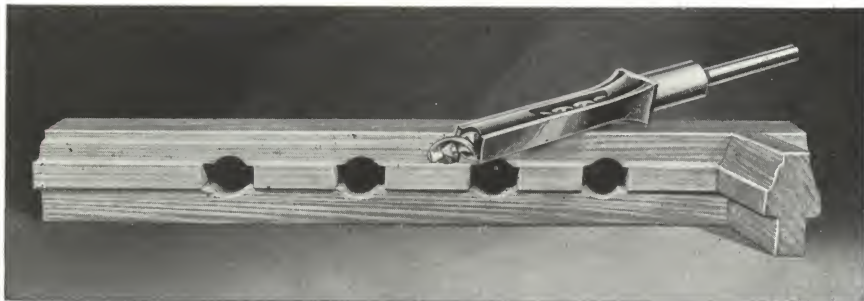
The ideal chisel for mortising stiles and rails for divided light sash. Also suitable for other styles of modern mortising. Fits any hollow chisel mortising machine.

**A request for complete information will get immediate action.**

Price includes center bit, for extra bits see list price on page 124—and mention style chisel wanted for.

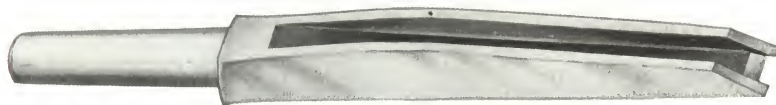
## Sash Bar Chisels Style 25-F.C.

$\frac{3}{8}$ " x $\frac{9}{16}$ " .....	\$12.00	$\frac{3}{8}$ " x $\frac{13}{16}$ " .....	\$12.00
$\frac{3}{8}$ " x $\frac{5}{8}$ " .....	12.00	$\frac{3}{8}$ " x $\frac{7}{8}$ " .....	12.00
$\frac{3}{8}$ " x $\frac{11}{16}$ " .....	12.00	$\frac{1}{2}$ " x $\frac{3}{4}$ " .....	12.00
$\frac{3}{8}$ " x $\frac{3}{4}$ " .....	12.00	$\frac{1}{2}$ " x $\frac{13}{16}$ " .....	12.00



Makes a complete mortise for sash bar tenon in single cut. Chisel sizes,  $\frac{3}{8}$  x  $\frac{3}{4}$ -inch,  $\frac{1}{2}$  x  $\frac{7}{8}$ -inch, etc. A  $\frac{3}{8}$  x  $\frac{3}{4}$ -inch takes  $\frac{5}{8}$ -inch bit. With this size bit, it is obvious that trouble will be avoided as experienced with old style bits, while the oblong shape chisel increases capacity of cut per stroke.

## Common Mortising Chisels



For Sash and Door Mortisers



For Implement and Wagon Mortisers  
For Car and Heavy Mortisers

Size Inches	Regular Sash and Door Mortiser	Size, Inches	Regular Sash and Door Mortiser
$\frac{1}{4}$ inch.....	\$3.00 each	$\frac{5}{8}$ inch.....	\$3.00 each
$\frac{5}{16}$ inch....	3.00 each	$\frac{3}{4}$ inch.....	3.25 each
$\frac{3}{8}$ inch....	3.00 each	$\frac{7}{8}$ inch.....	3.25 each
$\frac{1}{2}$ inch....	3.00 each	1 inch.....	3.25 each

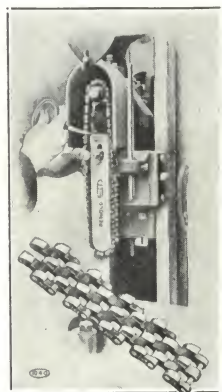
## Renold Chain Mortise Gear

(Fits Any Chain Mortising Machine)  
**ONE QUALITY—THE BEST**

Renold Mortise Gear is made by specialists in the manufacture of transmission chains. It embodies the best design, finest skill in workmanship, and these factors combined with the specially selected steels employed insures a user of Renold Gears the maximum results.

The block opposite illustrates a complete set of Renold Chain Mortise Gear (comprising Chain Guide Bar and Sprocket) cut into a piece of yellow pine.

Renold Gear is the **only** equipment on the market capable of cutting mortises in sizes ranging from  $\frac{3}{16}$ " to  $1\frac{1}{2}$ " width by  $\frac{3}{4}$ " to 3" length, with only two series of chain, namely, large series (.89" pitch) and small series (.54" pitch.) For details of sizes, see following pages.



## Automatic Mortiser Clamp

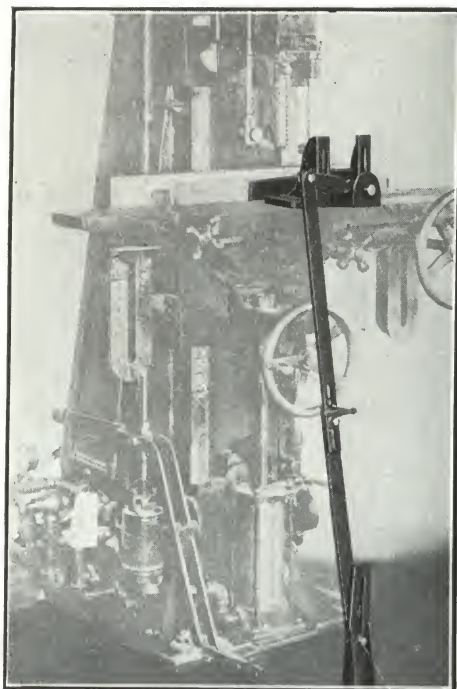
THE "CHAMPION" Automatic Mortiser Clamp automatically clamps material firmly and squarely to guide at beginning of up-stroke of mortiser table. It releases pressure for shift when material drops out of range of chain or bit. It prevents over-pressure after chain is cut—so difficult to avoid in hand manipulation of clamp pressure—which is often responsible for a permanent bend in the chain bars and crooked mortises. The importance of the "Champion" Automatic in improving the quality and increasing the production of mortising work can hardly be overestimated.

The illustration shows the "Champion" Automatic in position on a Northfield Chain Saw Mortiser.

Quickly and easily attached to any chain saw or hollow chisel mortiser with traveling table.

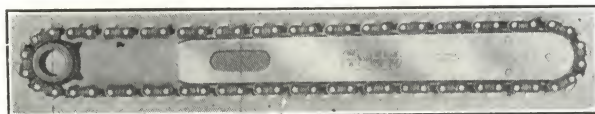
Substitutes mechanical precision for variable manipulation by hand and gives greater production per hour per machine.

**Price \$40.00**





STOCK SIZES OF  
**Renold Chain Mortise Gear**  
 (Consisting of Chain, Guide Bar and Sprocket)



SIZE OF HOLE			CHAIN			GUIDE BAR		SPROCKETS		PRICE COMP. SET
Width Ins.	Length Ins.	Depth Ins.	Chain No.	No. of Links	Price, with Spares	Bar No.	Price	Sprkt. No.	Price	
$\frac{3}{16}$	$\frac{3}{4}$	3	949	52	\$28.75	<b>794*</b>	\$15.00	6 R	\$3.25	\$47.00
$\frac{3}{16}$	$\frac{7}{8}$	3	970	46	22.00	01600	19.00	L 6 T	3.50	44.50
$\frac{3}{16}$	1	$3\frac{1}{2}$	970	46	22.00	01601	19.75	L 6 T	3.50	45.25
$\frac{3}{16}$	$1\frac{1}{8}$	4	970	46	22.00	01602	20.50	L 6 T	3.50	46.00
$\frac{3}{16}$	$1\frac{1}{4}$	$4\frac{1}{2}$	970	46	22.00	01603	21.25	L 6 T	3.50	46.75
$\frac{3}{16}$	$1\frac{1}{2}$	$4\frac{1}{2}$	970	46	22.00	01604	22.00	L 6 T	3.50	47.50
$\frac{1}{4}$	$\frac{3}{4}$	3	950	52	\$26.25	<b>800*</b>	\$15.50	6 S	\$3.25	\$45.00
$\frac{1}{4}$	$\frac{7}{8}$	3	971	46	22.75	01605	19.50	M 6 T	3.50	45.75
$\frac{1}{4}$	1	$3\frac{1}{2}$	971	46	22.75	<b>01606*</b>	16.25	M 6 T	3.50	42.50
$\frac{1}{4}$	$1\frac{1}{8}$	4	971	46	22.75	01607	21.00	M 6 T	3.50	47.25
$\frac{1}{4}$	$1\frac{1}{4}$	$4\frac{1}{2}$	971	46	22.75	<b>01608*</b>	17.50	M 6 T	3.50	43.75
$\frac{1}{4}$	$1\frac{1}{2}$	$4\frac{1}{2}$	910	32	15.25	<b>574*</b>	16.00	4 A	2.75	34.00
$\frac{1}{4}$	$1\frac{5}{8}$	$4\frac{1}{2}$	910	32	15.25	575	21.00	4 A	2.75	39.00
$\frac{1}{4}$	$1\frac{3}{4}$	$4\frac{1}{2}$	910	32	15.25	576	21.50	5 A	3.25	40.00
$\frac{1}{4}$	2	$4\frac{1}{2}$	910	34	16.00	700	22.00	5 A	3.25	41.25
$\frac{1}{4}$	$2\frac{1}{4}$	$4\frac{1}{2}$	910	34	16.00	701	26.00	6 A	4.00	46.00
$\frac{1}{4}$	$2\frac{1}{2}$	$4\frac{1}{2}$	910	36	17.00	702	27.00	7 A	4.50	48.50
$\frac{5}{16}$	$\frac{3}{4}$	3	951	52	\$27.25	<b>806*</b>	\$15.75	6 T	\$3.25	\$46.25
$\frac{5}{16}$	$\frac{7}{8}$	3	972	46	23.50	<b>01610*</b>	15.75	N 6 T	3.50	42.75
$\frac{5}{16}$	1	$3\frac{1}{2}$	972	46	23.50	<b>01611*</b>	17.25	N 6 T	3.50	44.25
$\frac{5}{16}$	$1\frac{1}{8}$	4	972	46	23.50	01612	21.50	N 6 T	3.50	48.50
$\frac{5}{16}$	$1\frac{1}{4}$	$4\frac{1}{2}$	972	46	23.50	<b>01613*</b>	18.25	N 6 T	3.50	45.25
$\frac{5}{16}$	$1\frac{1}{2}$	5	911	32	15.75	<b>577*</b>	16.75	4 B	2.75	35.25
$\frac{5}{16}$	$1\frac{3}{4}$	5	911	32	15.75	579	22.25	5 B	3.25	41.25
$\frac{5}{16}$	2	5	911	34	16.75	<b>580*</b>	17.75	5 B	3.25	37.75
$\frac{5}{16}$	$2\frac{1}{4}$	5	911	34	16.75	581	23.75	6 B	4.00	44.50
$\frac{5}{16}$	$2\frac{1}{2}$	5	911	36	17.50	705	24.25	7 B	4.50	46.25
$\frac{5}{16}$	$2\frac{3}{4}$	5	911	36	17.50	706	25.00	8 B	6.00	48.50
$\frac{5}{16}$	3	5	911	36	17.50	707	25.50	8 B	6.00	49.00
$\frac{5}{16}$	$3\frac{1}{2}$	5	911	38	18.50	894	30.50	9 B	7.50	56.50

It is recommended that sizes in bold type be used where possible. They are the most popular and, as a consequence, are lower in price due to their larger production.

## STOCK SIZES OF

## Renold Chain Mortise Gear

(Consisting of Chain, Guide Bar and Sprocket)



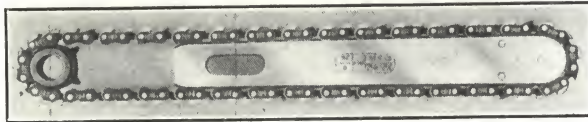
SIZE OF HOLE			CHAIN			GUIDE BAR		SPROCKETS		PRICE COMP. SET
Width Ins.	Length Ins.	Depth Ins.	Chain No.	No. of Links	Price With Spares	Bar No.	Price	Sprkt. No.	Price	
$\frac{3}{8}$	$\frac{3}{4}$	3	952	52	\$28.25	<b>806*</b>	\$15.75	6 T	\$3.25	\$47.25
$\frac{3}{8}$	$\frac{7}{8}$	3	973	46	24.50	<b>01610*</b>	15.75	N 6 T	3.50	43.75
$\frac{3}{8}$	1	$3\frac{1}{2}$	973	46	24.50	<b>01611*</b>	17.25	N 6 T	3.50	45.25
$\frac{3}{8}$	$1\frac{1}{8}$	4	973	46	24.50	01612	21.50	N 6 T	3.50	49.50
$\frac{3}{8}$	$1\frac{1}{4}$	$4\frac{1}{2}$	973	46	24.50	<b>01613*</b>	18.25	N 6 T	3.50	46.25
$\frac{3}{8}$	$1\frac{1}{2}$	5	912	32	16.25	<b>577*</b>	16.75	4 B	2.75	35.75
$\frac{3}{8}$	$1\frac{3}{4}$	5	912	32	16.25	579	22.25	5 B	3.25	41.75
$\frac{3}{8}$	2	5	912	34	17.25	<b>580*</b>	17.75	5 B	3.25	38.25
$\frac{3}{8}$	$2\frac{1}{4}$	5	912	34	17.25	581	23.75	6 B	4.00	45.00
$\frac{3}{8}$	$2\frac{1}{2}$	5	912	36	18.25	705	24.25	7 B	4.50	47.00
$\frac{3}{8}$	$2\frac{3}{4}$	5	912	36	18.25	706	25.00	8 B	6.00	49.25
$\frac{3}{8}$	3	5	912	36	18.25	707	25.50	8 B	6.00	49.75
$\frac{3}{8}$	$3\frac{1}{2}$	5	912	38	19.00	894	30.50	9 B	7.50	57.00
$\frac{7}{16}$	$\frac{3}{4}$	3	953	52	\$29.25	<b>812*</b>	\$21.75	6 U	\$3.25	\$54.25
$\frac{7}{16}$	$\frac{7}{8}$	3	974	46	25.00	01615	20.75	O 6 T	3.50	49.25
$\frac{7}{16}$	1	$3\frac{1}{2}$	974	46	25.00	01616	21.50	O 6 T	3.50	50.00
$\frac{7}{16}$	$1\frac{1}{8}$	4	974	46	25.00	01617	22.50	O 6 T	3.50	51.00
$\frac{7}{16}$	$1\frac{1}{4}$	$4\frac{1}{2}$	974	46	25.00	01618	23.25	O 6 T	3.50	51.75
$\frac{7}{16}$	$1\frac{1}{2}$	5	913	32	17.00	<b>582*</b>	16.75	4 C	2.75	36.50
$\frac{7}{16}$	$1\frac{3}{8}$	5	913	32	17.00	583	22.75	4 C	2.75	42.50
$\frac{7}{16}$	$1\frac{3}{4}$	5	913	32	17.00	584	23.00	5 C	3.25	43.25
$\frac{7}{16}$	2	5	913	34	18.00	585	23.50	5 C	3.25	44.75
$\frac{7}{16}$	$2\frac{1}{4}$	5	913	34	18.00	586	24.00	6 C	4.00	46.00
$\frac{7}{16}$	$2\frac{1}{2}$	5	913	36	18.75	587	24.75	7 C	4.50	48.00
$\frac{7}{16}$	$2\frac{3}{4}$	5	913	36	18.75	708	31.25	8 C	6.00	56.00
$\frac{7}{16}$	3	5	913	36	18.75	709	40.00	8 C	6.00	64.75

It is recommended that sizes in bold type be used where possible. They are the most popular and, as a consequence, are lower in price due to their larger production.

## STOCK SIZES OF

## Renold Chain Mortise Gear

(Consisting of Chain, Bar and Sprocket)

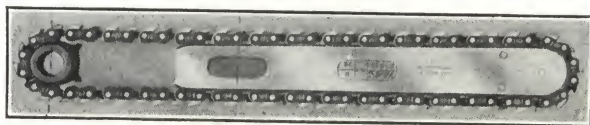


SIZE OF HOLE			CHAIN			GUIDE BAR		SPROCKETS		PRICE COMP. SET
Width Ins.	Length Ins.	Depth Ins.	Chain No.	No. of Links	Price With Spares	Bar No.	Price	Sprkt. No.	Price	
1/2	3/4	3	954	52	\$30.00	<b>818*</b>	\$22.25	6 V	\$3.25	\$55.50
1/2	7/8	3	975	46	25.50	01620	21.25	P 6 T	3.50	50.25
1/2	1	3 1/2	975	46	25.50	<b>01621*</b>	17.75	P 6 T	3.50	46.75
1/2	1 1/8	4	975	46	25.50	01622	22.75	P 6 T	3.50	51.75
1/2	1 1/4	4 1/2	975	46	25.50	<b>01623*</b>	19.50	P 6 T	3.50	48.50
1/2	1 1/2	5 1/2	914	32	17.75	<b>588*</b>	17.00	4 D	2.75	37.50
1/2	1 5/8	5 1/2	914	32	17.75	589	23.50	4 D	2.75	44.00
1/2	1 3/4	5 1/2	914	32	17.75	590	23.75	5 D	3.25	44.75
1/2	2	5 1/2	914	34	18.75	<b>591*</b>	18.75	5 D	3.25	40.75
1/2	2 1/4	5 1/2	914	34	18.75	592	25.25	6 D	4.00	48.00
1/2	2 1/2	5 1/2	914	36	19.75	593	26.00	7 D	4.50	50.25
1/2	2 3/4	5 1/2	914	36	19.75	594	26.00	8 D	6.00	51.75
1/2	3	5 1/2	914	36	19.75	595	27.00	8 D	6.00	52.75
1/2	3 1/2	5 1/2	914	40	21.75	870	36.75	9 D	7.50	66.00
9/16	3/4	3	955	52	\$31.00	<b>818*</b>	\$22.25	6 V	\$3.25	\$57.00
9/16	7/8	3	976	46	26.25	01620	21.25	P 6 T	3.50	51.00
9/16	1	3 1/2	976	46	26.25	<b>01621*</b>	17.75	P 6 T	3.50	47.50
9/16	1 1/8	4	976	46	26.25	01622	22.75	P 6 T	3.50	52.50
9/16	1 1/4	4 1/2	976	46	26.25	<b>01623*</b>	19.50	P 6 T	3.50	49.25
9/16	1 1/2	5 1/2	915	32	18.50	<b>588*</b>	17.00	4 D	2.75	38.25
9/16	1 5/8	5 1/2	915	32	18.50	589	23.50	4 D	2.75	44.75
9/16	1 3/4	5 1/2	915	32	18.50	590	23.75	5 D	3.25	45.50
9/16	2	5 1/2	915	34	19.75	<b>591*</b>	18.75	5 D	3.25	41.75
9/16	2 1/4	5 1/2	915	34	19.75	592	25.25	6 D	4.00	49.00
9/16	2 1/2	5 1/2	915	36	20.75	593	26.00	7 D	4.50	51.25
9/16	2 3/4	5 1/2	915	36	20.75	594	26.00	8 D	6.00	52.75
9/16	3	5 1/2	915	36	20.75	595	27.00	8 D	6.00	53.75
9/16	3 1/2	5 1/2	915	40	22.75	870	36.75	9 D	7.50	67.00

It is recommended that sizes in bold type be used where possible. They are the most popular and, as a consequence, are lower in price due to their larger production.



STOCK SIZES OF  
**Renold Chain Mortise Gear**  
 (Consisting of Chain, Guide Bar and Sprocket)



SIZE OF HOLE			CHAIN			GUIDE BAR		SPROCKETS		PRICE COMP. SET
Width Ins.	Length Ins.	Depth Ins.	Chain No.	No. of Links	Price With Spares	Bar No.	Price	Sprkt. No.	Price	
$\frac{5}{8}$	$\frac{3}{4}$	3	956	52	\$35.25	<b>824*</b>	\$24.00	6 W	\$3.25	\$62.50
$\frac{5}{8}$	$\frac{7}{8}$	3	977	46	27.00	01625	22.25	Q 6 T	3.50	52.75
$\frac{5}{8}$	1	$3\frac{1}{2}$	977	46	27.00	<b>01626*</b>	18.50	Q 6 T	3.50	49.00
$\frac{5}{8}$	$1\frac{1}{8}$	4	977	46	27.00	01627	23.75	Q 6 T	3.50	54.25
$\frac{5}{8}$	$1\frac{1}{4}$	$4\frac{1}{2}$	977	46	27.00	01628	24.50	Q 6 T	3.50	55.00
$\frac{5}{8}$	$1\frac{1}{2}$	$5\frac{1}{2}$	916	36	21.75	710	24.00	4 E	2.75	48.50
$\frac{5}{8}$	$1\frac{3}{4}$	$5\frac{1}{2}$	916	34	20.50	596	24.50	5 E	3.25	48.25
$\frac{5}{8}$	2	$5\frac{1}{2}$	916	34	20.50	<b>597*</b>	19.25	5 E	3.25	43.00
$\frac{5}{8}$	$2\frac{1}{4}$	$5\frac{1}{2}$	916	34	20.50	598	25.75	6 E	4.00	50.25
$\frac{5}{8}$	$2\frac{1}{2}$	$5\frac{1}{2}$	916	36	21.75	<b>599*</b>	20.25	7 E	4.50	46.50
$\frac{5}{8}$	$2\frac{3}{4}$	$5\frac{1}{2}$	916	36	21.75	600	26.75	8 E	6.00	54.50
$\frac{5}{8}$	3	$5\frac{1}{2}$	916	36	21.75	601	27.25	8 E	6.00	55.00
$\frac{3}{4}$	$1\frac{1}{2}$	6	917	36	\$24.75	712	\$25.00	4 F	\$2.75	\$52.50
$\frac{3}{4}$	$1\frac{3}{4}$	6	917	36	24.75	714	25.75	5 F	3.25	53.75
$\frac{3}{4}$	2	6	917	36	24.75	<b>602*</b>	20.00	5 F	3.25	48.00
$\frac{3}{4}$	$2\frac{1}{4}$	6	917	36	24.75	603	26.75	6 F	4.00	55.50
$\frac{3}{4}$	$2\frac{1}{2}$	6	917	36	24.75	<b>604*</b>	20.75	7 F	4.50	50.00
$\frac{3}{4}$	$2\frac{3}{4}$	6	917	36	24.75	605	28.00	8 F	6.00	58.75
$\frac{3}{4}$	3	6	917	36	24.75	606	29.25	8 F	6.00	60.00
$\frac{7}{8}$	$2\frac{1}{4}$	6	918	36	\$27.75	607	\$27.50	6 G	\$4.00	\$59.25
$\frac{7}{8}$	$2\frac{1}{2}$	6	918	36	27.75	608	28.25	7 G	4.50	60.50
$\frac{7}{8}$	$2\frac{3}{4}$	6	918	36	27.75	609	28.75	8 G	6.00	62.50
$\frac{7}{8}$	3	6	918	36	27.75	610	29.25	8 G	6.00	63.00
1	2	6	919	36	\$30.75	722	\$27.75	5 H	\$3.25	\$61.75
1	$2\frac{1}{2}$	6	919	36	30.75	<b>611*</b>	22.50	7 H	4.50	57.75
1	3	6	919	36	30.75	613	30.25	8 H	6.00	67.00
$1\frac{1}{8}$	$2\frac{1}{2}$	6	921	36	\$37.50	729	\$29.75	7 J	\$4.50	\$71.75
$1\frac{1}{4}$	$2\frac{1}{2}$	6	922	36	\$80.75	729	\$29.75	7 J	\$4.50	\$115.00

It is recommended that sizes in bold type be used where possible. They are the most popular and, as a consequence, are lower in price due to their larger production.

## STOCK SIZES OF

**Renold Chain Mortise Gear**(Consisting of Chain, Guide Bar and Sprocket)  
DOUBLE ROLLER BAR SERIES**REPAIR TOOLS---CHAIN GRINDING MACHINE**

This double roller bar series is particularly suitable for square bottom mortises, eliminating clipping tenons.

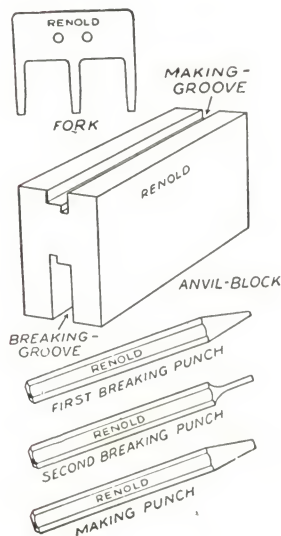
Prices on application.



Size of Mortise			Guide Bar No.	Chain No.	Sprocket No.
Width	Length	Depth			
$\frac{3}{8}$ "	$2\frac{5}{8}$ "	3 or 4"	879	912	7B
	$2\frac{7}{8}$ "		872		7B
	3"		885		8B
	$3\frac{1}{4}$ "		880		9B
	$3\frac{5}{8}$ "		882		9B
	$3\frac{3}{4}$ "		897		9B
	$3\frac{15}{16}$ "		883		10B
$\frac{1}{2}$ "	$2\frac{1}{2}$ "	$5\frac{1}{2}$ "	935	914	7D
	$3\frac{1}{4}$ "	4"	895		9D
$\frac{5}{8}$ "	$2\frac{1}{2}$ "	$5\frac{1}{2}$ "	936	916	7E

**Renold Mortise Chain Repair Tools**

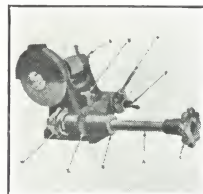
With these tools a chain can be easily and quickly repaired in a satisfactory manner. Prices on application.

**Renold Mortise Chain Grinding Machine**

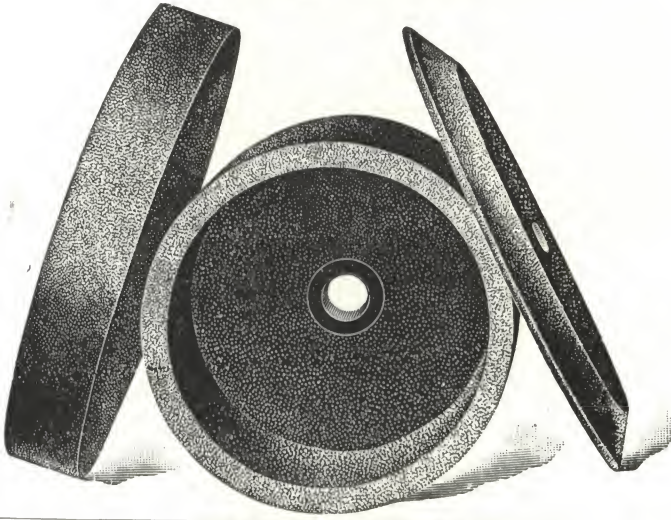
The Renold Grinder is made to correctly grind Mortise Chains and save money for the user.

Price, Machine No. 9701, complete with one sprocket and one emery wheel.

\$50.00



## Emery Wheels



THICKNESS OF WHEELS IN INCHES

Diameter	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
1	\$0.55	\$0.65	\$0.70	\$0.75	\$0.85	\$0.90	\$1.00	\$1.15	\$1.25
$1\frac{1}{2}$	.60	.70	.80	.85	.95	1.00	1.10	1.30	1.45
2	.80	.90	1.00	1.10	1.20	1.30	1.40	1.60	1.80
$2\frac{1}{2}$	.90	1.05	1.15	1.25	1.35	1.45	1.55	1.80	2.00
3	1.00	1.15	1.25	1.40	1.50	1.65	1.75	2.00	2.25
$3\frac{1}{2}$	1.15	1.30	1.45	1.60	1.70	1.85	1.95	2.25	2.50
4	1.40	1.50	1.70	1.85	2.00	2.20	2.35	2.70	3.00
$4\frac{1}{2}$	1.60	1.75	2.00	2.20	2.35	2.60	2.80	3.20	3.55
5	1.80	2.00	2.30	2.50	2.70	2.95	3.20	3.65	4.10
6	2.30	2.60	2.90	3.20	3.50	3.80	4.10	4.70	5.30
7	2.75	3.15	3.55	3.90	4.30	4.75	5.15	5.85	6.70
8	3.25	3.75	4.25	4.75	5.30	5.75	6.25	7.25	8.30
9	3.70	4.35	5.00	5.60	6.25	6.80	7.45	8.70	10.10
10	4.30	5.15	5.90	6.70	7.45	8.20	9.00	10.50	12.25
12	5.50	6.20	7.25	8.25	9.35	10.40	11.50	13.75	15.75
14	.....	.....	9.30	10.80	12.30	13.80	15.25	18.25	21.20
16	.....	.....	.....	.....	15.75	17.75	19.75	23.75	27.70
18	.....	.....	.....	.....	.....	.....	24.35	29.40	34.50
20	.....	.....	.....	.....	.....	.....	.....	36.10	42.00
22	.....	.....	.....	.....	.....	.....	.....	44.45	51.60
24	.....	.....	.....	.....	.....	.....	.....	53.00	61.00
26	.....	.....	.....	.....	.....	.....	.....	60.00	70.00
28	.....	.....	.....	.....	.....	.....	.....	69.00	83.00
30	.....	.....	.....	.....	.....	.....	.....	78.00	92.00

## The Huntington Emery Wheel Dresser

For Truing, Shaping, Sharpening and Removing Glaze from Emery  
Wheels Running at Full Speed



Price complete, with two sets of cutters.....\$1.50  
Extra cutters, per dozen sets..... 2.50



# American Standard File List

In.	Mill One Round Edge			M'll Two Round Edges			In.	Tapers		Slim Tapers		Band Saw Blunt and Taper	
	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth		Single Cut	Double Cut	Single Cut	Double Cut	Reg- ular	Slim
4	\$ 3.40	\$ 3.90	\$ 4.40	\$ 3.80	\$ 4.40	\$ 4.90	3	\$ 2.10	\$ 2.50	\$ 2.10	\$ 2.50	\$ 2.50	\$ 2.50
5	3.60	4.30	4.60	4.00	4.80	5.10	3½	2.10	2.50	2.10	2.50	2.50	2.50
6	3.90	4.50	5.10	4.40	5.00	5.60	4	2.20	2.90	2.20	2.60	2.90	2.60
7	4.40	5.20	5.50	4.90	5.80	6.10	4½	2.40	3.10	2.30	3.00	3.10	3.00
8	4.80	5.50	6.10	5.40	6.10	6.80	5	2.60	3.50	2.50	3.20	3.50	3.20
9	5.50	6.50	7.10	6.10	7.30	7.90	5½	3.00	4.00	2.90	3.50	4.00	3.50
10	6.30	7.20	7.90	7.00	8.00	8.80	6	3.40	4.70	3.10	3.90	4.70	3.90
11	7.50	8.80	9.60	8.40	9.80	10.60	7	4.30	5.60	3.80	4.50	5.60	4.50
12	8.40	9.70	10.60	9.40	10.80	11.80	8	5.40	6.70	4.50	5.30	6.70	5.30
13	10.60	12.00	13.20	11.80	13.40	14.60	9	6.60	8.10	5.40	6.30	8.10	6.30
14	12.00	13.70	14.70	13.40	15.30	16.40	10	8.10	9.70	6.40	7.50	9.70	7.50
15	14.70	16.90	18.10	16.40	18.80	20.10	11	10.70	12.10	8.30	9.10	12.10	9.10
16	16.50	18.90	20.10	18.40	21.00	22.40	12	12.50	14.70	9.50	11.00	14.70	11.00
17	20.50	22.70	24.40	22.80	25.30	27.10	13	15.90	17.50	12.10	13.10	17.50	13.10
18	22.70	25.50	27.30	25.30	28.40	30.40	14	18.20	20.60	13.80	15.40	20.60	15.40

In.	Horse Rasps			File Rasps		In.	Wood Files			Wood Rasps		
	Plain	Beveled and ¾ Rasp	Tanged	Flat	Half Round		Flat	Half Round	Cabinet	Flat	Half Round	Cabinet
6	.....	.....	.....	\$ 7.00	\$ 8.10	6	\$ 4.30	\$ 6.10	\$ 8.10	\$ 7.40	\$ 8.10	\$10.10
7	.....	.....	.....	8.60	9.30	7	4.80	7.00	9.30	8.60	9.30	11.70
8	.....	.....	.....	9.40	10.10	8	5.30	7.50	10.10	9.40	10.10	12.80
9	.....	.....	.....	11.40	12.20	9	6.30	8.50	12.20	11.40	12.20	15.50
10	9.40	10.70	12.80	12.80	13.70	10	7.00	9.10	13.70	12.80	13.70	17.50
11	11.40	12.90	15.20	15.50	16.80	11	8.60	10.70	16.80	15.50	16.80	20.70
12	12.80	14.40	16.80	17.50	18.70	12	9.70	11.80	18.70	17.50	18.70	22.80
13	15.20	17.00	19.60	20.90	22.40	13	11.80	14.10	22.40	20.90	22.40	26.80
14	17.80	20.10	23.10	23.20	24.80	14	13.30	15.50	24.80	23.20	24.80	29.60
15	20.90	23.60	27.30	27.80	29.70	15	16.00	18.50	29.70	27.80	29.70	33.90
16	24.40	27.50	32.20	30.80	32.90	16	17.80	20.60	32.90	30.80	32.90	36.90
17	28.90	31.50	.....	36.20	38.90	17	21.50	24.70	38.90	36.20	38.90	42.40
18	32.90	36.20	.....	40.90	43.60	18	23.90	27.50	43.60	40.90	43.60	46.90

Inch	Knife			Inch	Shoe Rasps		
	Bastard	2d Cut	Smooth		Flat	Half Round	Oval
4	\$ 5.40	\$ 6.10	\$ 6.40	6	\$ 8.10	\$ 8.10	\$ 9.30
5	6.10	6.70	7.10	7	9.30	9.30	10.10
6	6.90	7.50	7.90	8	10.10	10.10	12.20
7	7.80	8.50	8.90	9	12.20	12.20	13.70
8	8.50	9.10	9.50	10	13.70	13.70	16.80
9	9.40	10.60	11.30	11	16.80	16.80	18.70
10	10.10	11.50	12.30	12	18.70	18.70	22.40
11	12.20	13.70	14.60	13	22.40	22.40	
12	13.70	15.20	16.10	14	24.80	24.80	
13	16.30	17.90	19.20				
14	18.20	19.90	21.20				

Last Makers' Rasps  
One Inch Advance on Cabinet Rasp

Sizes below 4 inches, not extended, take 4-inch price.

Half inches, not specified, take next higher full inch price.

Dead Smooth, double the price of Bastard Cut.

One Round Edge, advance 12½ per cent.

Blunt Files, not specified, advance one inch on respective kinds and cuts.

Single or Float Cut, not specified, on regular shapes take Double Cut price.

Equalings (Bellied), advance two inches on respective kinds and cuts.

Two Round Edges, advance 25 per cent.

Cuts not specified, made upon regular blanks, advance one inch on respective kinds and nearest cuts.

## American Standard File List

In.	Mill and Round			Flat			In.	Square			Hand and Pillar		
	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth		Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth
4	\$ 3.00	\$ 3.50	\$ 3.90	\$ 3.70	\$ 4.30	\$ 4.70	4	\$ 3.80	\$ 4.60	\$ 4.90	\$ 3.70	\$ 4.30	\$ 4.80
5	3.20	3.80	4.10	3.90	4.60	4.90	5	4.10	4.80	5.30	3.90	4.70	5.30
6	3.50	4.00	4.50	4.30	4.80	5.30	6	4.60	5.10	5.50	4.30	5.10	5.60
7	3.90	4.60	4.90	4.80	5.50	6.10	7	5.10	5.80	6.30	4.90	5.80	6.30
8	4.30	4.90	5.40	5.30	6.10	6.60	8	5.50	6.30	7.00	5.40	6.30	6.70
9	4.90	5.80	6.30	6.30	7.20	7.90	9	6.60	7.70	8.30	6.70	7.80	8.30
10	5.60	6.40	7.00	7.00	8.10	8.70	10	7.40	8.50	9.10	7.50	8.70	9.40
11	6.70	7.80	8.50	8.60	9.80	10.70	11	9.10	10.40	11.30	9.40	10.90	11.80
12	7.50	8.60	9.40	9.70	11.00	12.10	12	10.20	11.50	12.80	10.70	12.30	13.50
13	9.40	10.70	11.70	11.80	13.60	14.70	13	12.50	14.30	15.40	13.30	15.20	16.20
14	10.70	12.20	13.10	13.30	15.30	16.70	14	13.90	16.10	17.50	15.00	17.00	18.20
15	13.10	15.00	16.10	16.00	18.30	20.00	15	16.90	19.20	20.90	17.90	20.60	21.70
16	14.70	16.80	17.90	17.80	20.10	22.30	16	18.70	21.20	23.30	20.10	22.80	24.20
17	18.20	20.20	21.70	21.50	24.20	26.50	17	22.50	25.40	27.50	24.20	27.10	28.60
18	20.20	22.70	24.30	23.90	26.80	29.20	18	25.10	28.20	30.40	26.80	29.90	31.50
19	24.60	27.50	29.40	28.40	31.60	34.60	19	29.70	33.20	35.70	31.90	35.40	37.60
20	27.40	30.70	32.90	31.50	35.30	38.80	20	32.80	36.70	39.30	35.10	39.20	41.60

Mill Blunt, Double Cut, Adv. 2 in.  
 Mill Double Cut, " 1 " advance 2 in.  
 Mill Narrow Point " 1 "

Cant (Blunt) Double Cut  
 advance 2 in.

Square Blunt.  
 Advance 1 in.

Slotting Blt., adv. 2 in.  
 Cotter Blunt or Taper,  
 advance 2 in.

Half-Round and Three Square				Warding			In.	Pit Saw	Cant Saw	G. A. X-Cut	Planer Knife		Inserted Tooth or Chisel Tooth
In.	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth		Single Cut	Single Cut	Single Cut	Single Cut	Double Cut	
4	\$ 4.80	\$ 5.60	\$ 6.10	\$ 4.00	\$ 4.80	\$ 5.40	4	\$ 4.80	\$ 4.30	\$ 4.80	.....	.....	.....
5	5.40	6.10	6.40	4.50	5.30	5.80	5	5.40	4.70	5.40	.....	.....	.....
6	6.10	6.70	7.10	4.90	5.90	6.40	6	6.10	5.40	6.10	.....	.....	.....
7	7.00	7.70	8.20	5.90	6.90	7.50	7	7.00	6.10	7.00	.....	.....	.....
8	7.50	8.30	8.90	6.40	7.50	8.20	8	7.50	6.40	7.50	\$ 6.40	\$ 7.40	\$ 8.30
9	8.50	9.40	9.90	7.80	9.00	9.90	9	8.50	7.80	8.50	7.40	8.60	9.40
10	9.10	10.10	10.70	8.70	10.10	11.00	10	9.10	8.70	9.10	8.60	10.90	10.10
11	10.70	11.80	12.70	10.90	12.70	13.70	11	10.70	10.40	10.70	10.90	12.10	.....
12	11.80	13.00	13.90	12.30	14.30	15.40	12	11.80	11.40	11.80	12.10	14.70	.....
13	14.10	15.40	16.60	15.20	17.40	18.70	Climax, adv. 2 in. on Half-Round Bastard Round Gulleting, take Pit Saw price						
14	15.50	17.00	18.30	17.00	19.40	21.00	Double-Ended Taper						
15	18.50	20.40	21.70	Stave Saw				6	7	8	9	10	
16	20.60	22.50	24.20	8 inch..... \$9.40				\$3.50	\$3.50	\$3.90	\$4.40	\$4.90	
17	24.70	27.00	28.90	Stave Saw Improved									
18	27.50	29.90	32.00	6 inch..... \$ 6.40									
19	32.80	35.70	38.10	7 inch..... 7.40									
20	36.20	39.40	42.30	8 inch..... 8.10									
Ginsaw, take bastard price.				9 inch..... 9.70									
Crossing..... adv. 2 in.				10 inch..... 10.70									
Tumbler..... " 2 "				12 inch..... 15.40									
Feather Edge (Blunt) " 2 "													
High Back Half-Rd. " 2 "													

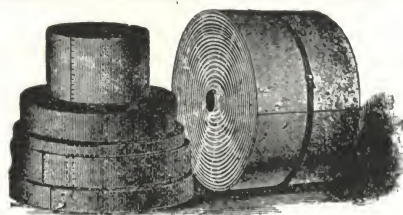
## Colton's Steel Back File Cards



Per dozen .....\$5.00

Each.....\$0.60

Leather



Belting

Inch Wdth	Leather Belting		Rubber Belting						White Cotton Belting			Stitched Canvas Belting		
	Single per ft.	Double per ft.	2-Ply Per Ft.	3-Ply Per Ft.	4-Ply Per Ft.	5-Ply Per Ft.	6-Ply Per Ft.	2-Ply Per Ft.	4-Ply Per Ft.	5-Ply Per Ft.	4-Ply Per Ft.	6-Ply Per Ft.	8-Ply Per Ft.	
1/2	\$0.12	\$0.24												
5/8	.15	.30												
3/4	.18	.36												
7/8	.21	.42												
1	.24	.48	\$0.18	\$0.20	\$0.24			\$ .08	\$0.18	\$0.22	\$0.24			
1 1/4	.30	.60	.23	.26	.30			.09	.20	.25				
1 1/2	.36	.72	.27	.31	.36	\$0.45		.10	.22	.27	.36			
1 3/4	.42	.84	.32	.36	.42	.53		.11	.24	.30				
2	.48	.96	.34	.39	.46	.58	\$0.69	.12	.26	.32	.46	\$0.69		
2 1/4	.54	1.08						.14	.28	.35				
2 1/2	.60	1.20	.42	.48	.56	.70	.84	.15	.30	.37	.56	.84		
2 3/4	.66	1.32												
3	.72	1.44	.48	.55	.65	.81	.98	.18	.34	.42	.65	.98		
3 1/4	.78	1.56												
3 1/2	.84	1.68	.57	.65	.76	.95	1.14	.20	.39	.50	.76	1.14		
3 3/4	.90	1.80												
4	.96	1.92	.61	.70	.82	1.03	1.23	.23	.43	.56	.82	1.23		
4 1/2	1.08	2.16		.78	.92	1.15	1.38	.26	.48	.63	.92	1.38		
5	1.20	2.40		.87	1.02	1.28	1.53	.28	.53	.69	1.02	1.53		
5 1/2	1.32	2.64						.31	.58	.76				
6	1.44	2.88		1.04	1.22	1.53	1.83	.33	.63	.81	1.22	1.83	\$2.44	
6 1/2	1.56	3.12						.37	.69	.90				
7	1.68	3.36		1.22	1.43	1.79	2.15	.40	.74	.96	1.43	2.15	2.86	
8	1.92	3.84		1.31	1.54	1.93	2.31	.44	.84	1.08	1.54	2.31	3.08	
9	2.16	4.32			1.73	2.16	2.60	.55	1.00	1.30	1.73	2.60	3.46	
10	2.40	4.80			1.92	2.40	2.88	.60	1.10	1.45	1.92	2.88	3.84	
11	2.64	5.28			2.11	2.64	3.17				2.11	3.17	4.22	
12	2.88	5.76			2.30	2.88	3.45	.68	1.27	1.70	2.30	3.45	4.60	
13	3.12	6.24			2.50	3.13	3.75				2.50	3.75	5.00	
14	3.36	6.72			2.69	3.36	4.04	.84	1.53	1.98	2.69	4.04	5.38	
15	3.60	7.20			2.88	3.60	4.32				2.88	4.32	5.76	
16	3.84	7.68			3.08	3.86	4.62	.96	1.75	2.25	3.08	4.62	6.16	
17	4.08	8.16												
18	4.32	8.64			3.46	4.32	5.20	1.08	1.98	2.52	3.46	5.20	6.92	
19	4.56	9.12												
20	4.80	9.60			3.84	4.80	5.76	1.20	2.20	2.85	3.84	5.76	7.68	
21	5.04	10.08												
22	5.28	10.56			4.22	5.28	6.34	1.30	2.44	3.20	4.22	6.34	8.44	
23	5.52	11.04												
24	5.76	11.52			4.60	5.76	6.90	1.40	2.64	3.40	4.60	6.90	9.20	
25	6.00	12.00												
26	6.24	12.48				6.26	7.50	1.55	2.87	3.90	5.01	7.50	10.00	
27	6.48	12.96												
28	6.72	13.44				6.72	8.08	1.70	3.15	4.15	5.38	8.08	10.76	
29	6.96	13.92												
30	7.20	14.40												
32						7.20	8.64	1.80	3.45	4.40	5.76	8.64	11.52	
34						7.72	9.24	2.00	3.80	4.85	6.18	9.24	12.32	
36						8.18	9.82				6.54	9.82	13.08	
38						8.64	10.40	2.15	4.30	5.50	6.91	10.40	13.84	
40											7.31	10.96	14.60	
42								2.50	4.75	6.20	7.69	11.52	15.36	
44								2.65	5.00	6.50	8.07	12.10	16.12	
46								2.85	5.25	6.90	8.45	12.68	16.88	
48								3.00	5.70	7.40	8.83	13.24	17.64	
											9.21	13.80	18.40	



**Clipper Belt Lacer No. 3**

Price \$25.00

Laces a Belt in  
three minutes

For general belt lacing work. A twenty-four pound lacer. Laces any belt not over  $\frac{3}{8}$ -inch thick and 6 inches wide in one operation. For wider belts repeat.

**Clipper Belt Hooks**

Clipper Hooks are made from a special steel wire which combines great tensile strength and ability to withstand fatigue. Actual tests have proven that each hook will stand a pulling strain of 60 pounds, equal to over 400 pounds per inch of belt. A card of Clipper Hooks can easily be slipped into the lacer.

Cards hold 84 hooks each and are packed 12 cards (one side) in a box with a sufficient number of Rawhide pins. Each box will lace 80 inches—both ends of belt.

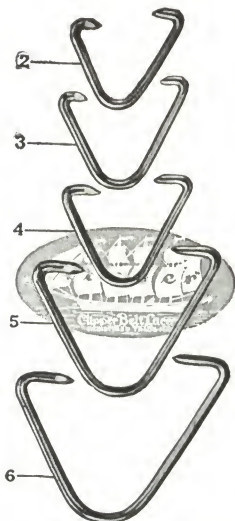
No. 2—For thin Belts over small pulley. Price, per box...\$0.95

No. 3—For thin Belts over medium sized pulley. Price, per box...\$1.00

No. 4—For Belts not over  $\frac{1}{4}$ -in. thick. Price, per box...\$1.00

No. 5—For Belts not over  $\frac{5}{16}$ -inch thick. Price, per box...\$1.15

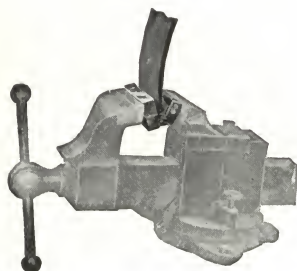
No. 6—For Belts not over  $\frac{3}{8}$ -inch thick. Price, per box...\$1.50



Actual Sizes of Hooks

**New No. 0 Baby Belt Lacer**

Price \$3.50



For use in any ordinary vise. Laces belts 4 inches wide and  $\frac{3}{8}$ -inch thick in one operation. Use hooks Nos. 2 to 6.

**Clipper Fibro, Special and Twisted Rawhide Pins**








Rawhide Pins are more suitable for use on quarter turn belts, belts shifted quickly from tight to loose pulleys, belts running on cone pulleys, or belts that are likely to climb a flange. Twisted Rawhide Pins will give satisfactory results if used under these conditions.

Are separately packed in standard packages as listed below. Each package contains 24 pins 12 inches long.

**Sizes and Prices of Clipper Fibro, Special and Twisted Rawhide Pins:**

Size—Diameter	Net Price Per Package		
	Fibro Special Rawhide		
No. 13, 3-32 inch, for Nos. 1, 2 and 3 hooks.	\$0.35	\$0.70	\$0.85
No. 12, 7-64 inch, for No. 4 hooks	.35	.70	.85
No. 11, 1-8 inch, for No. 5 hooks	.35	.70	.85
No. 10, 9-64 inch, for No. 5 hooks	.40	.80	.95
No. 9, 5-32 inch, for No. 6 hooks	.45	.90	1.05
No. 8, 11-64 inch, for No. 6 hooks	.50	1.00	1.15
No. 7, 3-16 inch, for heavy belts	.60	1.20	1.45
No. 5, 7-32 inch, for heavy belts	.70	1.60	2.00
Assorted Sizes (Nos. 8 to 13)	.40	.75	.90

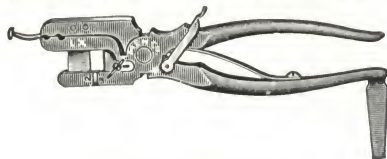
## Blake's Belt Studs

No. 5		\$ .70
" 4		" .80
" 3		" .90
" 2		" <u>1.25</u>
" 1		" <u>1.65</u>
" 0		" <u>2.00</u>
" 00		" <u>2.50</u>

CUT SHOWS FULL SIZE

## The LX Combination Belt Cutter

Cutter, Awl and Pliers in One Tool



Patent Pending

Price, each.....\$1.50

This is a tool of great convenience, a time-saver, and does the work of two tools, heretofore required for this purpose. It is made of best material, well finished, and first-class in every respect. It is a very useful tool, and no one using a belt cutter should be without one of these.

## Genuine LX Combination Wire Belt Lace

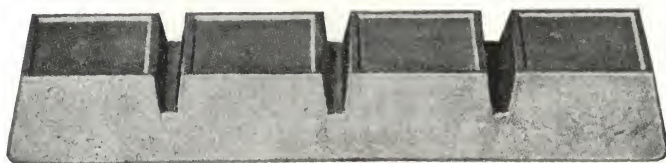


which is manufactured from a metal, the process a secret one, possessing all the qualifications needed to make it in every respect adapted to the purpose. It has a tensile strength of 2,000 pounds, when properly laced in an eight inch, double leather belt, a fact established beyond doubt, that it will stand a far greater strain than is even estimated in the driving capacity of a belt. The great saving in belting when this LACE is used will more than pay for its expense, to say nothing of the saving of time and annoyances from temporary shut-downs, to repair broken belts and torn out lace holes.

Price, per 100 feet, \$2.00.

All sizes.

## Woodworker's High Speed Babbitt Metal



### THE STANDARD BABBITT METAL

Has smallest coefficient of friction, wears longer, absorbs less power, requires less oil, fuel and rebabbiting than any other bearing metal. Stands heaviest pressures and highest speeds. Commonly runs ten and fifteen years and longer.

**Always Uniform**

**Always Reliable**

**65 cents per pound**

## Malleable Iron Ladles



Number .....	5	6	7	8	9	10	11
Diameter .....inches	2½	3	3½	4	5	6	8
Price .....each	\$0.50	\$0.55	\$0.60	\$0.65	\$0.80	\$1.00	\$1.50

These Ladles have malleable iron handles cast with the bole. They are heavier and more durable than wrought iron.

We guarantee them to be the best ladles made.

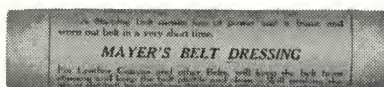
They will outlast two or three made of wrought iron, and cost less than any other make.

## Drop Forged Ladles

Diameter .....inches	2½	3	3½	4	5	6	8	10
Price .....each	\$0.50	\$0.55	\$0.60	\$0.75	\$0.90	\$1.25	\$1.75	\$2.25



## Mayer's Belt Dressing



For leather, rawhide, canvas and rubber belting. Will keep your belts clean and pliable and will positively prevent slipping. It will prolong the life of the belt by restoring the natural oils that wear takes from it.

How it works: It gathers all dust and foreign matter from the face of the belt and flakes it off to the floor, insuring a clean belt at all times. A trial will convince you that this dressing is in a class by itself and is everything that a belt dressing should be. Put up in two-pound bars.

Price, per bar.....\$1.25

## Wrenches

DROP FORGED FROM BAR STEEL



SINGLE HEAD, FINISHED

No.	Opening Milled	Extreme Length	PRICE	No.	Opening Milled	Extreme Length	PRICE
00	$\frac{5}{16}$	3	\$0.28	5	$\frac{7}{8}$	$7\frac{1}{2}$	\$0.76
700	$\frac{3}{8}$	$3\frac{1}{2}$	.30	6	$\frac{31}{32}$	$8\frac{3}{8}$	.92
0	$\frac{13}{32}$	$3\frac{1}{2}$	.30	706	1	$8\frac{3}{8}$	.92
701	$\frac{7}{16}$	4	.36	7	$\frac{11}{16}$	$9\frac{1}{4}$	1.14
1	$\frac{1}{2}$	4	.36	707	$\frac{11}{8}$	$9\frac{1}{4}$	1.14
702	$\frac{9}{16}$	$4\frac{3}{4}$	.44	8	$\frac{11}{4}$	$11\frac{1}{8}$	1.50
2	$\frac{19}{32}$	$4\frac{3}{4}$	.44	708A	$\frac{13}{8}$	$11\frac{1}{8}$	1.50
703	$\frac{5}{8}$	$5\frac{5}{8}$	.52	9	$\frac{17}{16}$	13	2.30
3	$\frac{11}{16}$	$5\frac{5}{8}$	.52	709	$\frac{11}{2}$	13	2.30
704	$\frac{3}{4}$	$6\frac{1}{2}$	.64	10	$\frac{15}{8}$	$14\frac{3}{4}$	3.20
4	$\frac{25}{32}$	$6\frac{1}{2}$	.64	11	$\frac{113}{16}$	$16\frac{1}{2}$	4.20
705	$\frac{13}{16}$	$7\frac{1}{2}$	.76				

## Universal Emery Wheel Dresser



Each \$4.50

Good emery wheel dressers are indispensable. Especially in saw sharpening, an efficient dresser is an essential aid to a free cutting, properly shaped wheel for the perfect shaping of the saw teeth and to prevent any injury to the teeth through burning or drawing the temper of the fine tooth edge.

### DIAMO-CARBO DRESSERS

#### Regular

Number	3	5	8
Size	$\frac{5}{8}$ x 10 inches	$\frac{5}{8}$ x 12	$\frac{3}{8}$ x 10
Price	each \$4.50	5.00	4.50

Fig. 36348C



## Oil Stones

### ARKANSAS BENCH STONES

### ARKANSAS ROUND EDGE SLIPS



Fig. 18960A



Fig. 18960B

Price			Price		
Size	Hard	Soft	Size	Hard	Soft
5x2x $\frac{3}{4}$ .....	\$3.60	\$1.50	4x1 $\frac{3}{4}$ x 1 $\frac{3}{8}$ .....	\$1.50	\$0.80
6x2x $\frac{3}{4}$ .....	6.00	2.00	5x1 $\frac{3}{4}$ x 1 $\frac{3}{8}$ .....	2.00	1.00

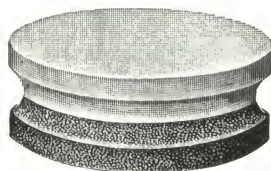
### CARBORUNDUM COMBINATION KNIFE STONES

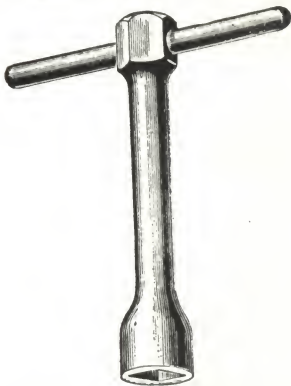
These stones are designed especially for sharpening planer knives, and paper and cloth cutting knives without taking the blade from the machine. The groove protects the fingers. Made with one side fine grit and the other side coarse grit.

No. 289—Combination Stone, 4 inches diameter, 1 $\frac{1}{2}$  inches thick.....Each \$2.50

No. 332—Combination Knife Stone, 3 $\frac{1}{2}$  inches square, 1 $\frac{1}{2}$  inches thick.....Each \$2.50

Packed, one only in carton.



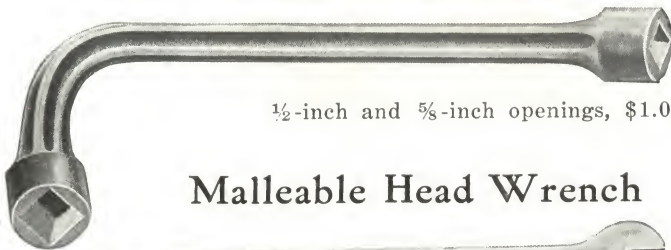


## Single Head Socket Wrenches



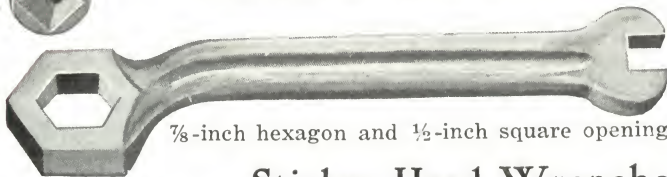
STRAIGHT PATTERN With Pin Handle						OFFSET PATTERN					
SQUARE			HEXAGON			SQUARE			HEXAGON		
No.	Opening	Price	No.	Opening	Price	No.	Opening	Price	No.	Opening	Price
961-J	$\frac{1}{4}$ "	\$0.80	963-D	$\frac{7}{16}$ "	\$0.98	261-J	$\frac{1}{4}$ "	\$0.70	263-D	$\frac{7}{16}$ "	\$0.75
962-H	$\frac{5}{16}$ "	.90	964-A	$\frac{1}{2}$ "	1.10	262-H	$\frac{5}{16}$ "	.80	264-A	$\frac{1}{2}$ "	.80
963-H	$\frac{3}{8}$ "	1.00	965-D	$\frac{9}{16}$ "	1.20	263-H	$\frac{3}{8}$ "	.90	265-D	$\frac{9}{16}$ "	.90
965-H	$\frac{1}{2}$ "	1.15	965-A	$\frac{5}{8}$ "	1.30	265-H	$\frac{1}{2}$ "	1.00	265-A	$\frac{5}{8}$ "	1.10
966-H	$\frac{1}{2}$ "	1.25	967-A	$\frac{11}{16}$ "	1.50	266-H	$\frac{1}{2}$ "	1.15	267-A	$\frac{11}{16}$ "	1.20
967-H	$\frac{3}{4}$ "	1.45	967-D	$\frac{3}{4}$ "	1.65	267-H	$\frac{3}{4}$ "	1.25	267-D	$\frac{3}{4}$ "	1.30
968-H	$\frac{5}{8}$ "	1.55	968-D	$\frac{13}{16}$ "	1.85	268-H	$\frac{5}{8}$ "	1.45	268-D	$\frac{13}{16}$ "	1.40
969-H	$\frac{3}{4}$ "	1.75	969-A	$\frac{15}{16}$ "	2.10	269-H	$\frac{3}{4}$ "	1.65	269-A	$\frac{15}{16}$ "	1.55
971-H	$\frac{7}{8}$ "	2.25				271-H	$\frac{7}{8}$ "	2.15			

## Goose Neck Wrench



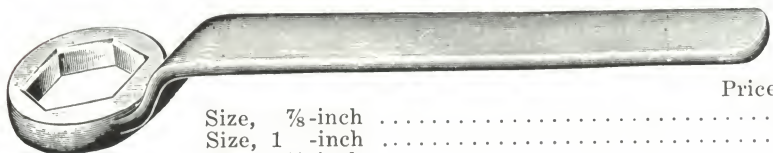
$\frac{1}{2}$ -inch and  $\frac{5}{8}$ -inch openings, \$1.00 each

## Malleable Head Wrench



$\frac{7}{8}$ -inch hexagon and  $\frac{1}{2}$ -inch square openings, \$1.00 each

## Sticker Head Wrenches



	Price, Each
Size, $\frac{7}{8}$ -inch .....	\$1.00
Size, 1 -inch .....	1.25
Size, $1\frac{1}{8}$ -inch .....	1.50
Size, $1\frac{1}{4}$ -inch .....	1.75
Size, $1\frac{3}{8}$ -inch .....	2.00



## Barbed Steel Dowel Pins



MADE OF NO. 8 WIRE

Length.....inches	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Per pound .....	.16	.16	.15	.15
Length.....inches	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$
Per pound .....	.15	.15	.15	.15

25 Pound Boxes and Kegs — PRICES ON APPLICATION.

## Selected Birchwood Dowels



Size, inch.....	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Per dozen ....	.22	.26	.32	.38	.42	.50	.54	.66	.92	1.36	1.74
Per 1000.....	1.38	1.58	1.98	2.40	2.66	3.24	3.40	4.12	5.78	8.40	10.80

3-FOOT LENGTHS—THOROUGHLY SEASONED

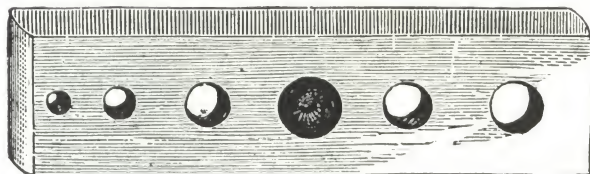
## Wood Dowel Pins, Grooved



Length.....inches	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$	3
$\frac{3}{8}$ inch.....per 1000	2.80	3.16	3.64	4.00	4.80	5.72
$\frac{7}{16}$ inch.....per 1000	....	3.40	3.80	4.32	5.12	6.08
$\frac{1}{2}$ inch.....per 1000	3.80	4.20	4.80	5.48	6.32	7.72

Where no price is given, the size cannot be furnished.

## Dowel Plates

No. 48. Length 6 in., holes  $\frac{1}{4}$  to  $\frac{1}{2}$  inch, each .....\$1.50

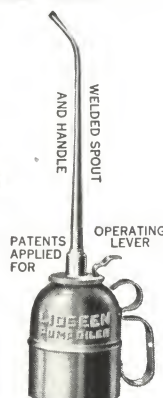
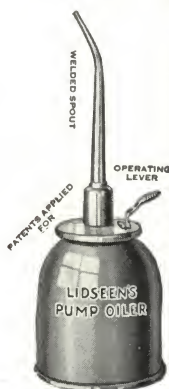
## LIDSEEN PUMP OILERS

The Highest Grade and Most Efficient Pump Oiler Made

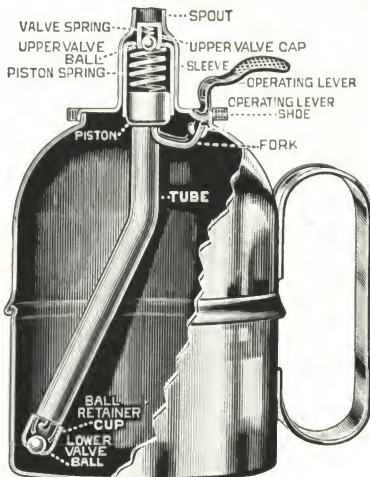
This oiler is made of Heavy Steel with triple interlocked joints and Welded Seams. The Pump Mechanism which is of Brass is attached to and removable with the spout. This permits the mechanism and valves to be cleaned when necessary. The Pump Mechanism contains No Leather Washers or Packing of Any Kind to become worn. Large Opening for Filling. Curved Flanges and Locking Members secure spout to can. Will Not Leak Oil from Spout when inverted. Will Force Oil to a great height—will handle perfectly any oil from Gasoline to the Heaviest Grade of Transmission Lubricant.

On the left is shown the 1-Pint Oiler, Nos. 522, 523, Gun Metal Finish and Nos. 542, 543 Copper-Plated Finish.

On the right is shown a section of the spout with the pump mechanism attached.



On the right is the 1½ Pint Nos. 525 and 545 and the 1 Quart Oiler Nos. 700, 701, 702 Gun Metal Finish; Nos. 600, 601, 602 Copper-Plated Finish.



### LIST PRICES LIDSEEN PUMP OILERS STEEL GUN METAL FINISH

No.	Size	Dia.	Height	Length	Dozen
	Can	Can	Can	Spout	Price
520	¾ Pint	3 1/4"	3"	5 1/2"	\$17.50
522	1 Pint	3 1/4"	3 3/4"	5 3/4"	18.50
523	1 Pint	3 1/4"	3 3/4"	9 1/2"	19.25
525	1 1/2 Pint	3 3/4"	4 1/2"	12"	25.00
700	1 Quart	4"	5 1/2"	12"	32.00
701	1 Quart	4"	5 1/2"	18"	34.50
702	1 Quart	4"	5 1/2"	23"	37.00
900	1 1/2 Quart	4 1/2"	6"	12"	35.55
901	1 1/2 Quart	4 1/2"	6"	18"	38.05
902	1 1/2 Quart	4 1/2"	6"	23"	40.50

### STEEL HEAVILY COPPER PLATED

No.	Size	Dia.	Height	Length	Dozen
	Can	Can	Can	Spout	Price
540	¾ Pint	3 1/4"	3"	5 1/2"	\$19.00
542	1 Pint	3 1/4"	3 3/4"	5 3/4"	20.00
543	1 Pint	3 1/4"	3 3/4"	9 1/2"	20.75
545	1 1/2 Pint	3 3/4"	4 1/2"	12"	26.00
600	1 Quart	4"	5 1/2"	12"	33.00
601	1 Quart	4"	5 1/2"	18"	35.50
602	1 Quart	4"	5 1/2"	23"	38.00
1000	1 1/2 Quart	4 1/2"	6"	12"	37.05
1001	1 1/2 Quart	4 1/2"	6"	18"	39.55
1002	1 1/2 Quart	4 1/2"	6"	23"	42.00

Spouts come bent unless otherwise ordered

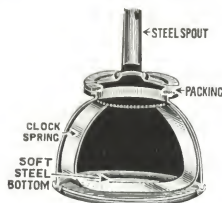
## G. L. All Welded Push Bottom Oilers

THIS IS THE OILER WITH THE BOTTOM WHICH CANNOT STAY PUSHED IN OR FRACTURE

Made of Heavy Steel with Welded Seams. The bottom of this oiler is made of Soft Steel and Actuated by a section of Clock Spring. This exclusive feature assures the user that the bottom will never stay pushed in or fracture as in cans where high carbon steel bottoms are used.

On the left is shown the No. 310 Oiler, Gun Metal Finish.

Spouts come Half Bent and Half Straight unless otherwise ordered.



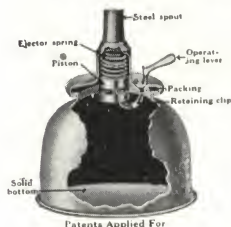
### LIST PRICES G. L. ALL WELDED PUSH BOTTOM OILERS

No.	Size	Dia.	Height	Length	Dozen
	Can	Can	Can	Spout	Price
306	1/8 Pint	3"	2"	3"	\$6.00
307	1/8 Pint	3"	2"	5"	6.25
309	1/8 Pint	3 1/2"	2 1/4"	3"	6.25
310	1/8 Pint	3 1/2"	2 1/4"	5"	6.50
311	1/8 Pint	3 1/2"	2 1/4"	8"	7.00
313	1 Pint	4"	3"	5"	8.25
314	1 Pint	4"	2"	8"	8.75

# The Lidseen Positive Force Feed Oilers

THEY SAVE TIME AND OIL

These Two Illustrations Show the Mechanical Features of the Oiler



Few Parts, Will Not Get Out of Order,  
Welded Spouts

This oiler has all of the Mechanism in the Spout thereby Reserving the Can Proper for Oil. The Operating Lever controls the amount of oil Forced out of Can, which gives the operator any Amount of Oil Desired. The Spout is held on Can Body by curved Flanges and Locking Members which makes it Secure and Leak Proof at this connection, and Cannot Wear Out like the ordinary threads. It has a Large Opening for Filling. It is a Positive Force Feeder thereby Eliminating Stoppage of Spouts, the Operating Lever Does the Work. Made in Heavy Drawn Steel, Simple and Sturdy construction. These Oilers can be used for Oiling in Vertical Positions by Inverting Can and Pulling Operating Lever Half Way Down which Traps Oil in spout. Then hold oiler in Vertical Position and Oil Overhead.

## GUN METAL FINISH

No.	Size	Engineers' Machinists' and Millwrights' can	Height	Length	Spout	Oilers Dozen Price
6	1/4 Pint	3 1/4 "	2 "	4 "	4 "	\$ 8.50
7	1/2 Pint	3 1/4 "	2 "	5 1/2 "	5 1/2 "	8.50
8	3/4 Pint	3 1/4 "	2 "	9 1/2 "	9 1/2 "	9.00
9	1 Pint	3 1/2 "	2 1/4 "	4 "	4 "	9.00
10	1/2 Pint	3 1/2 "	2 1/4 "	5 1/2 "	5 1/2 "	9.00
11	3/4 Pint	3 1/2 "	2 1/4 "	9 1/2 "	9 1/2 "	9.75
12	1 Pint	3 1/2 "	2 3/4 "	5 1/2 "	5 1/2 "	9.75
13	3/4 Pint	3 1/2 "	2 3/4 "	9 1/2 "	9 1/2 "	10.50
<b>Machinery Oilers</b>						
19	3/4 Pint	3 1/4 "	3 "	4 "	4 "	\$10.50
20	3/4 Pint	3 1/4 "	3 "	5 1/2 "	5 1/2 "	10.50
21	3/4 Pint	3 1/4 "	3 "	9 1/2 "	9 1/2 "	11.25
22	1 Pint	3 1/4 "	3 3/4 "	5 1/2 "	5 1/2 "	11.25
23	1 Pint	3 1/4 "	3 3/4 "	9 1/2 "	9 1/2 "	12.00

## HEAVY COPPER PLATED

No.	Size	Engineers' Machinists' and Millwrights' can	Height	Length	Spout	Oilers Dozen Price
26	1/4 Pint	3 1/4 "	2 "	4 "	4 "	\$10.00
27	1/2 Pint	3 1/4 "	2 "	5 1/2 "	5 1/2 "	10.00
28	3/4 Pint	3 1/4 "	2 "	9 1/2 "	9 1/2 "	10.50
29	1 Pint	3 1/2 "	2 1/4 "	4 "	4 "	10.50
30	1/2 Pint	3 1/2 "	2 1/4 "	5 1/2 "	5 1/2 "	10.50
31	3/4 Pint	3 1/2 "	2 1/4 "	9 1/2 "	9 1/2 "	11.25
32	1 Pint	3 1/2 "	2 3/4 "	5 1/2 "	5 1/2 "	11.25
33	3/4 Pint	3 1/2 "	2 3/4 "	9 1/2 "	9 1/2 "	12.00
<b>Machinery Oilers</b>						
39	3/4 Pint	3 1/4 "	3 "	4 "	4 "	\$12.00
40	3/4 Pint	3 1/4 "	3 "	5 1/2 "	5 1/2 "	12.00
41	3/4 Pint	3 1/4 "	3 "	9 1/2 "	9 1/2 "	12.75
42	1 Pint	3 1/4 "	3 3/4 "	5 1/2 "	5 1/2 "	12.75
43	1 Pint	3 1/4 "	3 3/4 "	9 1/2 "	9 1/2 "	13.50

## BRASS OILERS

No.	Size	Engineers' Machinists' and Millwrights' can	Height	Length	Spout	Oilers Dozen Price
50	1/2 Pint	3 1/2 "	2 1/4 "	5 1/2 "	5 1/2 "	\$18.00
51	3/4 Pint	3 1/2 "	2 1/4 "	9 1/2 "	9 1/2 "	19.00
<b>Machinery Oilers</b>						
62	1 Pint	3 3/4 "	3 3/4 "	5 1/2 "	5 1/2 "	\$22.00
63	1 Pint	3 3/4 "	3 3/4 "	9 1/2 "	9 1/2 "	23.00

Spouts come half bent and half straight unless otherwise ordered.

## Quart Size

Made of Strong Drawn Steel, but Very Light in Weight. Welded Spouts and Handles. No Solder on entire can. Large opening for filling.

Made in 12, 18 and 23-in. Spouts.

This Oiler is equipped with Lock which holds the lever down, preventing oil dripping from end of spout if can should tip over.

This Oiler has all of the other good features of the

LIDSEEN  
POSITIVE  
FORCE FEED  
OILERS

ILLUSTRATED  
ABOVE.



## QUART OILER

### Heavy Copper Plated

100	Quart	4 "	5 1/2 "	12 "	\$20.00
101	Quart	4 "	5 1/2 "	18 "	22.50
102	Quart	4 "	5 1/2 "	23 "	25.00





Gopher

## Gopher Furniture or Factory Truck

This truck fills the demand for a low priced vehicle in woodworking plants. Large 12-inch main wheels and 6-inch casters make it easy to operate. One-inch round steel axle.

All woodwork is Northern hardwood. Corner irons securely bolted to frame, holding the corners together and providing anchorage for the  $1\frac{1}{2} \times 2\frac{5}{8}$ -inch removable hardwood stakes. Platform  $13\frac{3}{4}$  in. high.

### Iron Truck Parts

Buyers who believe in building their own trucks, altho overhead, labor and loss of profit on the labor usually eat up any saving, can obtain all iron parts, including bolts necessary to construct the Gopher Truck.

Platform	Weight	Price	Platform	Weight	Price
24x48	135	\$12.00	30x60	160	\$14.00
24x54	145	13.00	All Iron Work		8.40

## Nutting

### Standard Woodworkers' Truck

A standard, strong, easy running truck designed for rough work in the handling of cut up stock through all the processes of manufacture. A standard design in use by the thousands.

Large easy running wheels. Main wheels 14-inch diameter, caster wheels  $6\frac{3}{4}$ -inch diameter with one-inch round steel axle. Interlocking corner irons with removable octagon stakes, the strongest made. Option of flat stakes if wanted. Platform 15 inches from floor of Northern hardwood with large heavy framework. This truck outsells other types five to one. 1500 pound capacity.



Fig. A.

Size	Weight (Approx.)	Price
27x48	155	\$14.60
27x54	165	15.45
30x60	180	16.60
Roller bearings in main wheels		3.65

Extra heavy truck as illustrated above. Our Figure G with 18-inch diameter main wheels and 8-inch diameter wheels caster has a 3000 pound capacity.

Size	Weight (Approx.)	Price
30x60	250	\$24.05
36x72	280	27.10

## Cabinet-Maker's Bench No. 1



### Price

Each.....\$36.00

Height, 34 in.

Maple Top, 16 in. wide.

Tool Recess, 10 in. wide.

Legs, 2x3 in.

## Truck Wheels and Casters



### Main Wheels

12 inch for Gopher  
Truck.....\$1.85

14 inch for Figure  
A and F..... 2.80

18 inch for Figure G 3.75

Extra per wheel for  
roller bearings. 1.40



### Casters

6 inch for Gopher  
Truck.....\$1.95

6 3/4 inch for Figure  
A and F..... 2.20

8 1/4 inch for Figure  
G..... 4.50

Extra for ball  
bearings..... 1.25

## O. & S. Universal Motor Stand

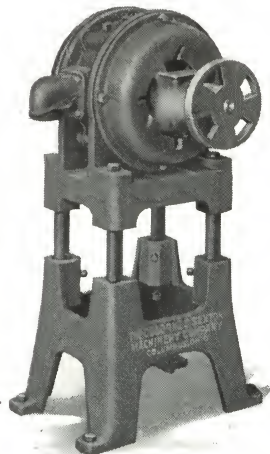
With flexible coupling is used for converting various types of belt driven tools into modern direct connected motor types.

It is adjustable for any height, is fitted with individual screw adjustment at each of the four corners to compensate either for settling of floors or wear in bearings.

Will accommodate motors of various sizes and any speeds, including 3600 R. P. M., without perceptible vibration and connects direct to planer cylinders, saw arbors, jointers, etc.

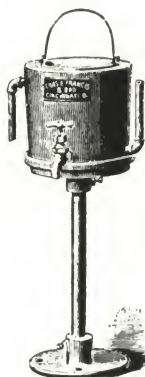
We will furnish at regular standard price 3600 R. P. M. motors or motors of proper speed to suit your particular installation, will drill stand and fit motor to same without charge, thus insuring a correctly fitted installation.

Stands only, each, net F. O. B. Factory.....\$50.00



Showing motor mounted  
with Flexible Coupling  
fitted.

## Glue Heaters



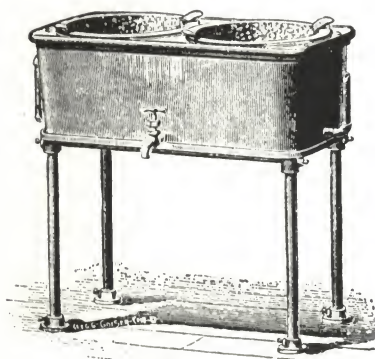
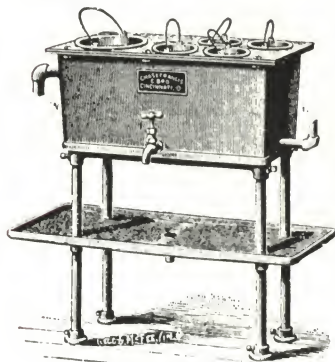
Nos. 1 to 4.



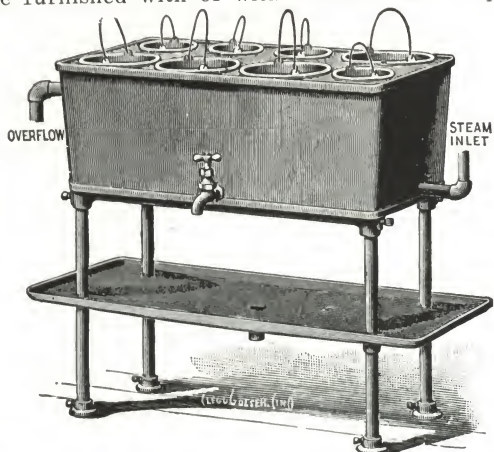
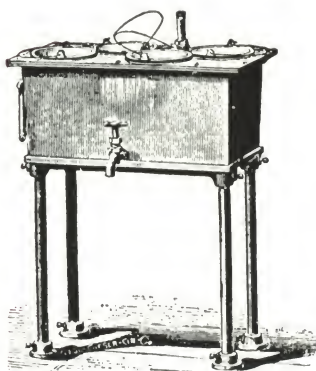
Nos. 5 to 8.



Nos. 9 and 10.



Style Nos. 11 to 15, which are furnished with or without stand and drip pan as desired.



Style Nos. 16 to 29, which are furnished with or without stand and drip pan as desired.



## Glue Heaters

All Heaters are regularly fitted—and usually wanted—with iron pots. Sizes up to and including 3-quart capacity, are enameled and larger sizes are galvanized.

Some parties prefer Copper Pots. We are prepared to furnish good, strong copper pots at slight additional charge. We can also furnish aluminum pots is desired.

These Heaters are regularly fitted with either perforated steam pipe or with steam injector, either method heating the water very quickly and preventing the water from splashing over, but the steam injector or mixer has a tendency to overcome the knocking and pounding noise when steam is turned into tank. We can fit them with Copper or Iron Steam Coil if desired, at an extra cost.

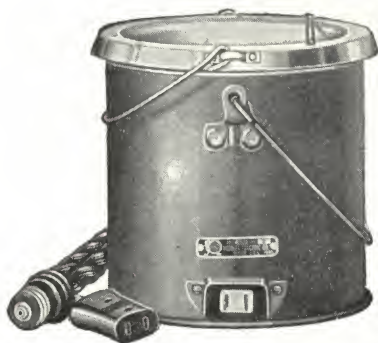
Gas Water Heater Attachment can be furnished, at an additional charge, where parties do not have steam to use these Glue Heaters.

Prices quoted on application.

No.	Number and Capacity of Glue Pots	No.	Number and Capacity of Glue Pots
1	One 2-quart ..... \$19.08	14	One 2-gallon and two 2-quart. . \$43.20
2	One 3-quart ..... 21.60	15	Four 2-quart ..... 41.76
3	One 4-quart ..... 22.68	16	Two 4-gallon ..... 67.50
4	One 6-quart ..... 30.20	17	Two 2½-gallon and two 2-qt. . 66.24
5	One 2-gallon ..... 31.68	18	Six 2-quart ..... 64.80
6	One 2½-gallon ..... 32.40	19	Four 3-quart and four 2-quart. 67.50
7	One 4-gallon ..... 42.30	20	One 2-gallon and seven 1-quart 66.60
8	One 6-gallon ..... 51.30	21	One 1½ gallon and six 1-quart. 66.60
9	Two 2-quart ..... 27.00	22	One 2½ gallon and four 2-quart 66.60
10	Two 3-quart ..... 29.70	23	One 4-gallon and four 2-quart. . 67.50
11	Six 1-quart ..... 41.40	24	One 4-gallon and six 1-quart . . 68.94
12	One 1-gallon and three 1-quart. 42.76	25	Two 1½-gallon and five 1-quart 67.50
12A	One 1½ gallon and three 1-qt.. 42.94	26	Nine 3-quart ..... 66.60
12B	One 1 gallon and four 1-quart.. 42.94	27	Eight 2-quart ..... 66.60
12C	One 1½ gallon and four 1-quart 43.20	28	One 4-gallon, one 1-gallon and two 2-quart ..... 68.94
13	Two 2-gallon ..... 42.94	29	One 2½-gallon and four 1-quart 64.90

## "Hold Heet" Electric Glue Pots

### With Automatic Thermostat Control



#### Advantages of "Hold-Heet" Automatic Glue Pots

- 1—Glue always at proper temperature.
- 2—No possibility of overheating or spoiling.
- 3—No water jacket to boil dry.
- 4—Minimum evaporation of water from glue.
- 5—No special wiring needed—eight one-quart pots operated on an ordinary lighting circuit.

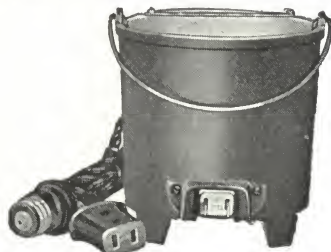
Size	Watts	Order by Catalog number		Price Complete	Price Extra Inner Chamber
		110 Volts Cat. No.	220 Volts Cat. No.		
1-Quart	132	G1101	G2201	\$14.00	\$2.50
2-Quart	220	G1102	G2202	17.00	3.00
4-Quart	330	G1104	G2204	20.00	5.00
8-Quart	660	G1108	G2208	28.00	6.50

Be Sure to Select Proper Voltage

## New "Hold Heet" Melting Pots

### Cast Aluminum—Air Radiation Type

Substantial, moderate priced pots for use where close temperature regulation is not essential. They operate on the air radiation principle and the input of current is so adjusted that when desired operating temperature is reached, the radiation equals the heat input so that fairly close temperatures are maintained.



#### Order by Catalog Number

Size	Order by Catalog Number		Price
	110 Volts Cat. No.	220 Volts Cat. No.	
1-Quart	C. G.-1101	C. G.-2201	\$ 8.00
2-Quart	C. G.-1102	C. G.-2202	11.00

Be sure to select the proper voltage and one of the four optional temperature ratings. Glue Melting Pots of 150° F. are shipped on all orders unless higher temperature pots are specified.

Supplied for Melting  
Various Compounds  
No Extra Charge.

Material	Avg. Temp.
Glue	150° F.
Paraffin	200° F.
Wax	250° F.
Rubber Compound	350° F.

### —GUARANTEE—

Every "HOLD-HEET" appliance is Fully Guaranteed as to material and workmanship. Heating elements that burn out within one year from date of sale will be replaced free.

## “Hold Heet” Immersion Heaters

Voltage:

110 to 250

Wattage:

500 to 4000



Standard  
Length, 6 ins.  
to 24 ins.  
One or Two  
Blades, Single  
or 3-Heat  
Control

The Immersion Type Heating Unit is the most economical method for heating tanks, fluids in containers, or where the application of direct heat energy is required. It is very satisfactory and suitable for water, oil, paints, plating tanks and for replacing steam installation.

The heating units are built along the same principle as the standard HOLD-HEET air and conduction heaters. The resistor is imbedded between India Mica plate and encased with a seamless copper tube, flattened and sealed.

They make a very compact heater and are easily installed by drilling a hole in the

tank or container to be heated. All units are equipped with leads and can be supplied with either the blades only, or fitted with standard  $1\frac{1}{2}$ " pipe thread fittings. They can also be equipped with standard connection box suitable for conduit or BX connections. Heaters with rating of 1,000 watts or under can be supplied with an 8-foot asbestos covered heater cord and plug.

Three heat switches are supplied completely wired on two blade heaters when ordered.

Units in special sizes and ratings on request and we invite proposals in any quantity.

### SINGLE BLADE HEATERS

Tube Length	Length Under				Blade Head
Over All	Head	WATTS	Blade Only	Blade with Head	and Cap
6 $\frac{1}{4}$ "	6 "	500	\$ 4.50	\$ 7.50	\$ 8.10
9 $\frac{1}{4}$ "	9 "	750	4.80	7.80	8.40
12 $\frac{1}{4}$ "	12 "	1000	5.10	8.10	8.70
18 $\frac{1}{4}$ "	18 "	1500	6.00	9.00	9.60
24 $\frac{1}{4}$ "	24 "	2000	7.40	10.40	11.00

### DOUBLE BLADE HEATERS

Tube Length	Length Under				Blade Head
Over All	Head	WATTS	Blade Only	Blade with Head	and Cap
6 $\frac{1}{4}$ "	6 "	1000		\$10.75	\$11.35
9 $\frac{1}{4}$ "	9 "	1500		11.35	11.95
12 $\frac{1}{4}$ "	12 "	2000		11.95	12.55
18 $\frac{1}{4}$ "	18 "	3000		13.75	14.35
24 $\frac{1}{4}$ "	24 "	4000		16.55	17.15

Above units equipped with 3 heat switches.

Additional price... { \$1.50 on 10 ampere switches  
2.00 on 15 ampere switches  
2.50 on 20 ampere switches

## The Black & Decker Electric Glue Pot

Fool Proof, 2-qt Pot.....\$27.00

The Heating Element is sealed both at the top and bottom, which protects it from water, glue, and dirt, and eliminates danger of fire, as there is no way for sawdust or shavings to come into contact with the element.

Thermostat is contained in the Heating Element, and prevents overheating of glue or burning out of the ribbon.

The sloping sides reduce tendency of spillage down the sides.

A correctly designed handle affords an easy means for carrying and the heavy iron wiper across the center of the glue receptacle makes it convenient and prevents waste by dripage.





## PORCELAIN LINED GLUE POTS



Best  
Quality  
Standard  
Glue Pots  
for all  
Purposes

No.		Each
00—	$\frac{5}{8}$ pint.....	\$1.10
0—	$\frac{3}{4}$ pint.....	1.20
1—1	pint.....	1.30
2—2	pints.....	1.45
3—2 $\frac{1}{2}$	pints.....	1.60
4—1 $\frac{1}{2}$	quarts.....	1.80
5—1 $\frac{3}{4}$	quarts.....	2.10

## DEINER MORANDI GLUE HEATERS



Constructed  
to Burn  
Kerosene Oil

Made of heavy  
tin throughout

No.		No. 11	No. 12	No. 13
		1 Pint	2 Pint	3 Pint
		\$4.45	\$4.75	\$4.95

## Glue Brushes



## RD. GLUE BRUSHES—IRON HANDLES

## No. 345

No.		Doz.
00—	$\frac{3}{8}$ " diameter .....	\$6.40
1—	1" " .....	8.00
3—	1 $\frac{1}{4}$ " " .....	13.50
4—	1 $\frac{1}{2}$ " " .....	16.70

## RD. GLUE BRUSHES—WOOD HANDLE

## No. 348

No.		Doz.
5—	1 $\frac{1}{2}$ " diameter .....	\$20.70
6—	2" " .....	29.70
7—	2 $\frac{1}{4}$ " " .....	44.10

## FLAT GLUE BRUSHES

## No. 360

No.		Doz.
1—	1 $\frac{1}{2}$ " wide .....	\$7.30
2—	1 $\frac{3}{4}$ " " .....	9.10
4—	2" " .....	16.80
6—	3" " .....	21.30
7—	3 $\frac{1}{2}$ " " .....	24.80

## Champion Dovetail Glue Spreader



**Saves Time, Labor and Annoyance**

This is one of the most convenient devices for spreading glue on dovetail work as well as in mortise grooves. The spreader sets over the glue pot and the revolving wheel bring up the glue as the work is run over it. The aluminum dovetail wheel fits standard dovetail joints, and the straight wheel fits mortise grooves. No waste of glue. No sloppy work.

**Price \$7.00. Guaranteed. Your money back if not satisfactory.**



## Hand Glue Spreader

Roller drops deep into pot of glue and projects high enough to allow short or long stock to be moved over it to take a spread of glue. An ideal combination for work bench service.

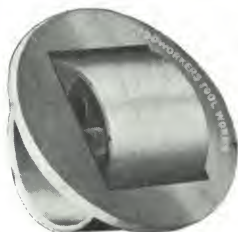
Saves brushing, smearing, daubing and wasting glue with brushes and sticks.

Light pressure of stock moved over roller causes roller to turn and carry a continuous spread of glue from pot to surface of wood.

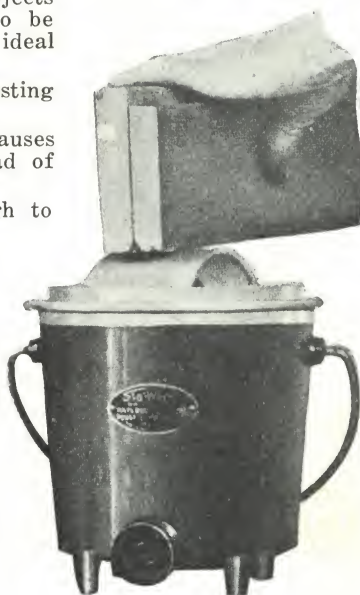
Can be used in any size pot large enough to admit roller.

Clean — economical — inexpensive — satisfactory.

**Price \$4.50**

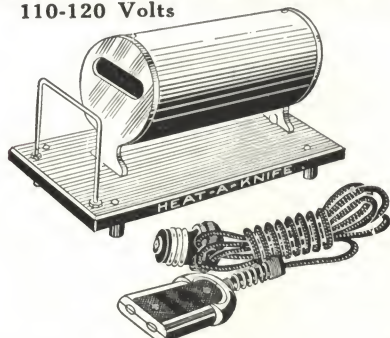


The roller is shown here mounted in 2-quart electric glue pot.





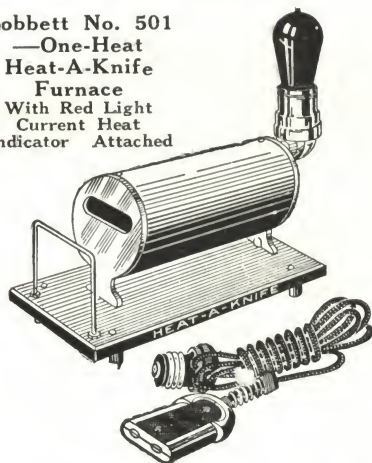
**No. 55—Heat-a-Knife Special, \$6.00**  
110-120 Volts



**Bobbett No. 5—One-Heat Heat-A-Knife Furnace**

No. 5—One-Heat Furnace, 110-120 volts . . . \$7.50  
No. 500—One-Heat Furnace, 220-240 volts . . . 8.50  
Wire Cable, \$2.50 Extra

**Bobbett No. 501**  
—One-Heat  
Heat-A-Knife  
Furnace  
With Red Light  
Current Heat  
Indicator Attached



No. 501—One-Heat Furnace, with red light heat indicator, 110-120 volts. \$ 9.50  
No. 502—One-Heat Furnace, with red light heat indicator, 220-240 volts. 10.50  
Wire Cage, \$2.50 Extra  
Furnaces Nos. 5, 55, 500, 501 and 502 have an opening for knives 1 5/16 wide, 5 1/16 inches high, 5 inches long.

**Bobbett Nos. 51, 510, 511, 512 One-Heat Furnaces**

Bobbett Nos. 51, 510, 511 and 512 One-Heat Furnaces are larger furnaces than our Nos. 5, 500, 501 and 502 has a knife opening 2 1/2 inches wide, 3/4 inches high, 7 1/2 inches long.  
No. 51—One-Heat Furnace, 110-120 volts. . . . . \$10.00  
No. 510—One-Heat Furnace, 220-240 volts . . . . . 11.00  
No. 511—One-Heat Furnace, with red light heat indicator, 110-120 volts. . . 12.00  
No. 512—One Heat Furnace, with red light heat indicator, 220-240 volts. . . 13.00  
Wire Cage, \$2.50 Extra

**HEAT-A-KNIFE**

**Furniture Patchers' Electric Furnace**

Attention! Mr. Superintendent:  
**SAFETY FIRST—ALWAYS!**  
Why Play With Fire?

A modern furniture factory had a fire causing the death of two workmen due to the use of flame torches.

**Use Our Electric Furnace**

Safety devices feature this "Heat-a-Knife" furnace. A new adjustable handle rest prevents the wooden handle of the knife burning while being heated. A rust-proof and scale-proof oven is mounted on an asbestos base.

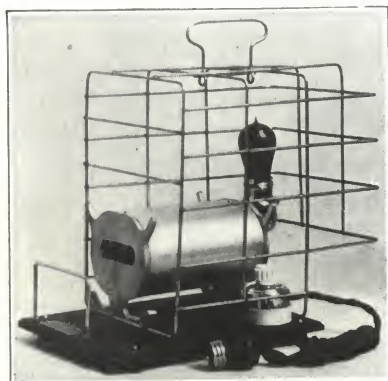
Furnace is strong, solid and well-made throughout.

Furnaces are furnished complete with cord and plug.

**Buy One of Our New Wire Cages for Your Heater**

Protects your help  
Used as a carrier and will keep anything from coming in contact with Heater

These furnaces are used by Woodworkers and Cabinet Makers to heat knives for the purpose of melting a filler for worm holes, nail holes, etc.



**Bobbett No. 517—Two-Heat Heat-A-Knife Furnace, With Red Light Heat Indicator Attached and Wire Cage.**

Nos. 52, 516, 517, 518 Two Heat Furnace has a knife opening 2 3/4 inches wide, 3/4 inches high, 7 1/2 inches long.

**TWO-HEAT FURNACES**

**Bobbett Nos. 50, 513, 514, 515—**

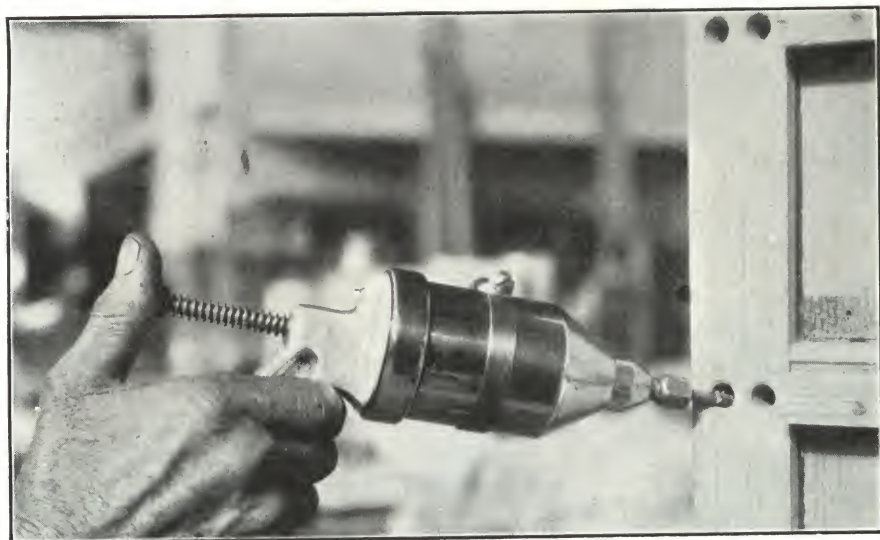
**Two-Heat Heat-A-Knife Furnaces**

The Two-Heat Furnace is operated by means of a two-heat snap switch attached to the base of the furnace. The first point brings the stove up to red heat very quickly and the second point reduces the heat to low heat or working heat.

No. 50—Two-Heat Furnace, 110-120 volts. . . . . \$10.50  
No. 513—Two-Heat Furnace, 220-240 volts . . . . . 11.50  
No. 514—Two-Heat Furnace, with red light heat indicator, 110-120 volts . . . . . 12.50  
No. 515—Two-Heat Furnace, with red light heat indicator, 220-240 volts 13.50  
Wire Cage, \$2.50 extra  
Size of opening for knives, 1 5/16 inches wide, 5 1/16 inches high, 5 inches long.



## The Hallock Glue Gun



### Patent Applied For

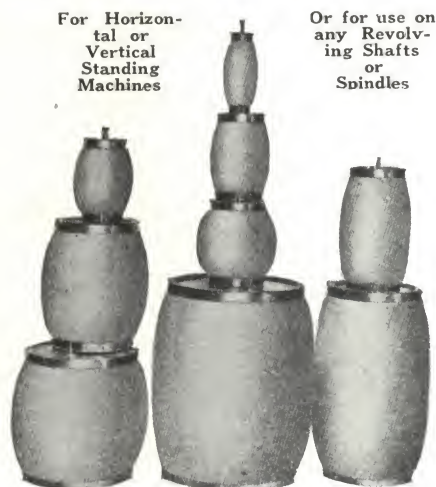
Used for applying glue in dowel holes, mortisers, grooves, slots and other places difficult to glue with brush and stick. Pressure of the workman's thumb forces glue out through the nozzle. Gun refills itself by suction when placed over glue pot. The correct amount of hot glue is placed where needed. Speeds up production, saves glue.

Price .....\$15.00

## Pneumatic Sanding Drums

These drums may be used on any horizontal or vertical sander, or with sandpaper sleeves on almost any revolving shaft or spindle, such as grinding heads, polishing heads, shaper spindles, lathes, flexible shafts, etc.

When slightly inflated, the soft, pliable cushions readily conform to any rounded shape. When fully inflated, they form a barrel-shaped cushion for faster, easier, better and more economical sanding of concave or hollow stock, such as chair seats and similar shaped pieces.



### NET PRICES, STANDARD STYLE

2" x 9".....	\$15.60
4" x 9".....	19.50
8" x 9".....	26.00
3" x 9".....	17.55
6" x 9".....	22.75

## Solid Rubber Sander Drums

These rolls are used on shapers, lathes, grinding and polishing heads, in fact any revolving shaft. The sandpaper is first glued up in a cylindrical form of the required size, then drawn over the roll.



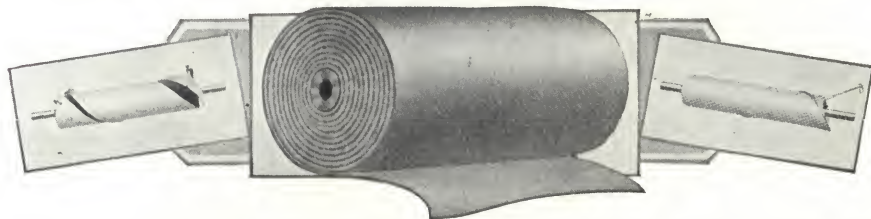
When the nut on the shaft is tightened to hold the roll in place, it expands the rubber roll inside the sandpaper cylinder and holds it tightly in place.

These rolls are intended primarily for sanding flat work.

In ordering, give the outside diameter of roll desired, the length and the diameter of the hole.

Price, per pound .....\$1.75

## "Woodworkers" Felt for Sanding Machine Drums



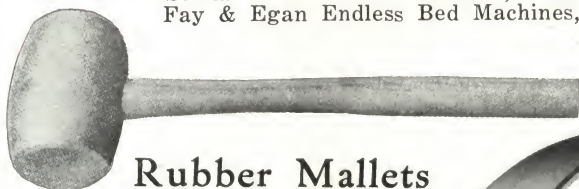
Good live felt for sanding machine drums plays as important a part in your sanding operations as the sandpaper itself. We have been supplying the wood-working trade for many years, proving the quality of our equipment and supplies. Let us be your headquarters for any woodworking requirement. Instructions for recovering sent on request. State size and make of machine.

### "Bed Rubbers"

For Endless Bed Sanders



Yates Endless Bed Machines, each.....	\$0.16
Smith Endless Bed Machines, each.....	.13
Solem Endless Bed Machines, each.....	.16
Fay & Egan Endless Bed Machines, each.....	.22



### Rubber Mallets

#### PRICES

14 oz., each.....	\$1.50
16 oz., each.....	1.75
22 oz., each.....	2.00

### WHEN IN NEED OF Rubber Pulley Covers

Remember that we can furnish these for all sizes of iron and wood pulleys. Our complete stock on hand enables us to give you prompt delivery on any size needed.

Price per pound.....\$2.50





# Hy-Speed

## Portable Electric Mixers

For

Glues, Varnishes, Stains,  
Mixed Paints, Fillers,  
Laquers, etc.

### FEATURES:

Clamp to any tank, barrel, vat, etc., in one minute.

Portable; can be quickly changed from one container to another.

Easy to clean as shafts are solid and cannot collect liquid inside.

Operate from light socket if preferable.

Produce absolutely uniform results without hand labor.

Constructed to stand up under years of constant use.

Thousands of these simple mixing machines are in use in every line of trade where difficult mixing problems are encountered.

The tremendous saving of time and labor over hand methods, and the assurance that uniform results will always be obtained on any mixing job, is the reason that practically all progressive concerns are using "HY-SPEED" Mixers.

	Price
Type No. 3—1/10 H. P. ....	\$37.50
Type No. 4—1/4 H. P. ....	63.50
Type No. 6—1/2 H. P. ....	127.50

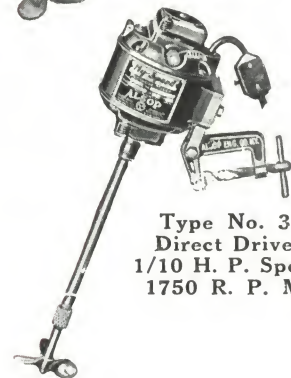
Note: Always specify depth of tanks, and type of electricity when ordering.



Type No. 6.  
Heavy Duty  
Geared Model.  
1/2 H. P. Speed  
440 R. P. M.



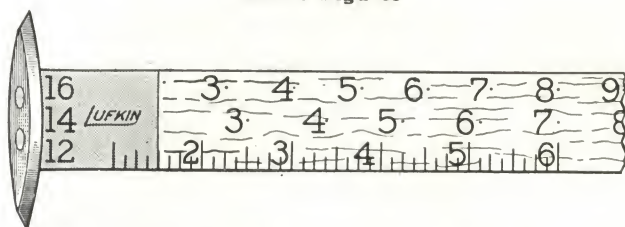
Type No. 4.  
Direct Drive  
1/4 H. P. Speed  
1750 R. P. M.



Type No. 3.  
Direct Drive.  
1/10 H. P. Speed  
1750 R. P. M.

## Hickory Board Rules

Burnt Figures

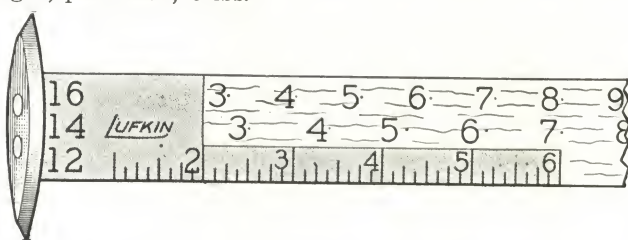


**Note**—All rules listed on this page except No. 50 are marked on one side to measure 12, 14 and 16 feet, opposite side 8, 10 and 18 feet, or 18, 20 and 22 feet.

**In ordering, always state whether you want rules marked 8 to 18, or 12 to 22 feet. For all special rules an extra price will be charged.**

**No. 3**—3 Tier, 1½ in. wide, Board Rule. Has extra heavy brazed head (steel caps and 1½ in. brass shoulders).

Figured 30 inches, with 6 in. handle. Full length 3 ft. Each, net \$3.50  
Weight, per dozen, 6 lbs.



**No. 6**—3 Tier, 1½ in. wide, Board Rule. Has extra heavy brazed head (steel caps and 2 in. brass shoulders). With 6 in. brass plate, graduated in inches and 8ths, as illustrated above.

Figured 30 inches, with 6 in. handle. Full length 3 ft. Each..\$3.75  
Wt. per dozen, 6¾ lbs.

### With Socket Steel Square Head

**No. 4**—3 Tier, 1½ in. wide, Board Rule. Patent socket steel head. A good, low priced, serviceable rule.

Figured 30 inches, with 6 in. handle. Full length 3 ft. Each...\$3.25  
Wt., per dozen, 6 lbs.

### Export Rule

**No. 50**—1 Tier, 1 in. wide. Has extra heavy brazed head (steel caps and 2 in. brass shoulders). Marked both sides in inches and half inches only.

Figured 30 inches, with 6 in. handle. Full length 3 ft. Each...\$3.50  
Wt., per dozen, 5¼ lbs.

### HOW TO MEASURE TIMBER AND LUMBER

To ascertain the number of cubic feet in round timber, find the average circumference by adding the circumference of the larger and smaller ends and dividing by 2; multiply the square of one-fourth of this average circumference by the length in feet; the result gives four-fifths of the real contents in cubic feet, one-fifth being customarily allowed to the purchaser for waste in sawing.

To measure contents of square timber, multiply the width by the thickness, in inches; this product by the length in feet, and divide by 12; result gives feet.

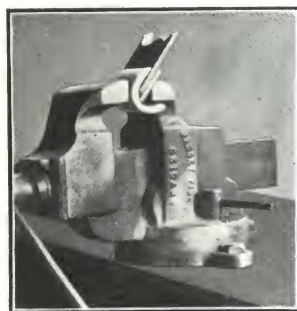
To measure boards, multiply length in feet by breadth in inches, and divide by 12 for inch boards; the quotient gives contents in feet. For boards 1½ inches thick, add one-quarter to quotient; if 1¾, add one-half; if 2 inches, divide by 6 instead of 12; if 3 inches, divide by 4; if 4 inches, divide by 3; if 6 inches, divide by 2.

## Angle Knife Irons

### Holds Knives to Be Filed

These knife irons fit any machinist's vise and hold sticker or molder knives at the correct angle for rapid, accurate filing of small members. With these knife iron your man can work the quicker and the better way.

**Handy—inexpensive, per pair, \$3.00**



## Aluminum Push Block

Was designed and perfected in our own pattern shop and placed on the market at the request of the state factory inspector, who termed it a most practical device for use in connection with a jointer. We recommend it particularly for pattern shop, manual training schools or factories that use the jointer for various operations.

The greatest danger caused by the hand jointer is resultant from machining short stock that is unusually winding. Without having a good, firm hold on stock, it is apt to chatter, this being the source of injury. With the Push Block or Hold Down one can

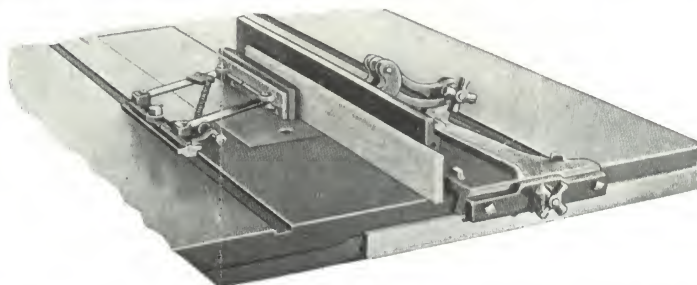
firmly press the stock down and the shoulder on the end prevents the stock from kicking back.

If the stock should be shaky or even split there could be no damage done to the operator as the Hold Down is strong enough to withhold it.

**MADE OF ALUMINUM**, it is light to handle and the shape conforms to the hand so that it is not tiresome. In fact, fatigue is much less than when not used as the pressure is removed from the fingers and applied to the block.

**Price, \$4.00**

## French Tension Guard for Saw Tables



The guard never comes into contact with the saw but only with the board that is being grooved or rabbitted. Price.....\$24.00

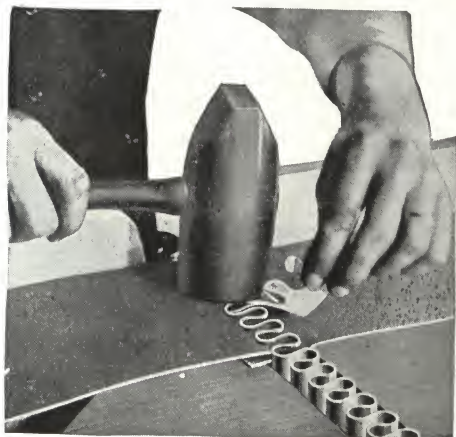


## Dowel Centers



For inserting into hole already bored and marking exact center for opposite hole.

Size of Hole.....inch	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$
Each.....	\$0.40	\$0.40	\$0.40	\$0.45	\$0.45	\$0.60	\$0.65
Per Set, one of each size.....	\$3.00						



## Die for Making End-less Sand Belts

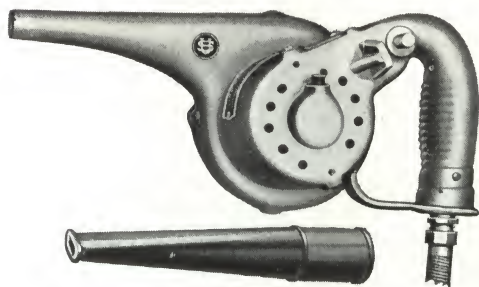
Here is a handy tool every user of sandbelts should have. A man with an end-wood mallet quickly drives the two ends of the belt into the die, making a clean dovetail joint. The dovetail feature relieves the strain on the backing strip, and this can be of thin material.

The Mattison die makes a smoother and stronger joint than any other method. It cannot pull apart. Works equally well on cloth or paper, and will cut either straight across or diagonally.

Ask for illustrated and descriptive circular.

12" long.....\$12.50

## "U. S." Blower



### Rubber insulating tip for cleaning electrical appliances

The U. S. Blower is built in one size only. For removing dust, lint and free dirt.

Universal Motor; S. K. F. BALL BEARINGS; aluminum body; rubber insulating tip; switch, quick make, quick break, 12'x6"x6" flexible rubber

located in the handle convenient to operator; 12 feet covered cable; armored attachment plug.

Dimensions.....	12"x6"x6"
Net Weight.....	7 lbs.
Velocity Air per Second.....	267 feet
Speed, R. P. M.....	18,000
Price.....	\$38.00

### A Few of the Many Applications

Cleaning—  
Electric Motors  
Electric Generators  
Switch Boards  
Buss Bars  
Electric Meters  
Textile Machinery  
Shoe Machinery  
Flour Mill  
Machinery  
Wood Working  
Machinery

or wherever it is necessary to remove free dirt, dust or lint.

## Magnetic Brad-set

Patented May 25, 1915

Every pattern-maker wants one.

Every carpenter, cabinet-maker, every glazier needs one.

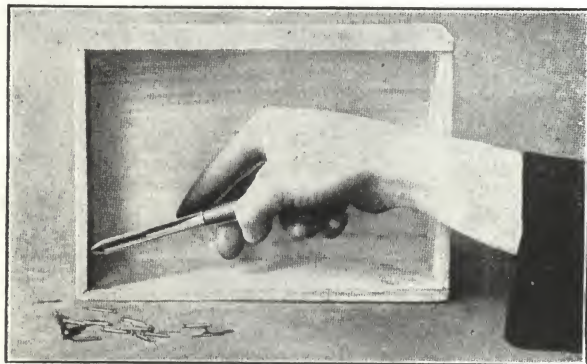
It will soon become the last tool in his kit with which he would part. For putting leather fillets on patterns it has no equal.

To operate, simply put brad in end of set, and place set against material into which brad is to be driven, and push brad to desired position.

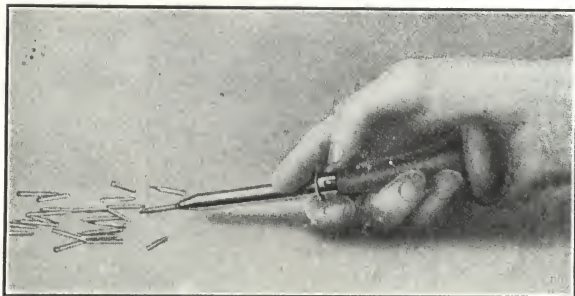
Works in hard as well as soft wood, leather, etc.

If one hand is engaged in holding a piece in place, grasp barrel of set between first and second fingers, and pull until magnetic ram is exposed, when it will readily pick up brad, which has been thrown on bench or other convenient place.

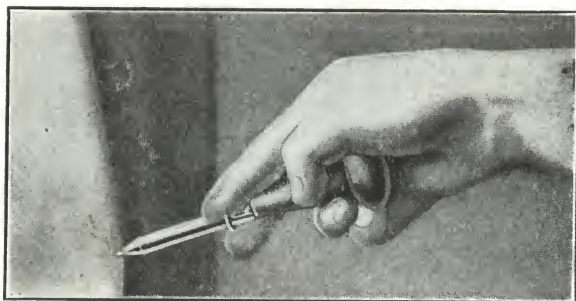
No nail set required, as brad will be set beneath surface far enough to cover with putty or wax.



EASILY REACHES MOST UNHANDY PLACES



THE MAGNETIZED RAM PICKS 'EM UP  
IN A JIFFY



A PUSH DOES THE TRICK

**Price \$2.50**

## ALL-IN-ONE Hand Cut Steel Figures

Never gets figures upside down.  
Prevents shattering and improves  
the appearance of the lettering.  
Prevents loss of individual fig-  
ures.

HIGH GRADE HAND CUT  
guaranteed for workmanship and  
material.

The perfect tool for marking  
tops of pistons, connecting rods,  
motor blocks, chassis, springs,  
tools, battery poles and name  
plates, etc.

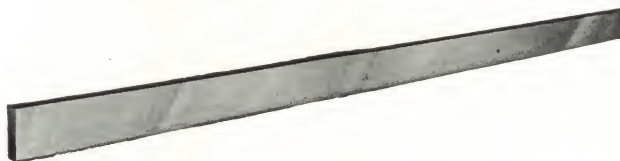


Size	Net, each
1/16" .....	\$2.90
3/32" .....	3.25
1/8" .....	3.50
3/16" .....	4.00

Size	Net, each
1/4" .....	\$4.35
5/16" .....	4.85
3/8" .....	5.00

## Steel Straight Edges

For Lining Up Drum Sanders and  
Other Wood-Working Machines



Much of the inferior machine work and many machine troubles are due entirely to misalignment of bed plates, guides, rolls, cutterheads, drums, pressure bars, etc. Steel straight edges instantly reveal misalignment of machine parts and assist in realignment.

Our standard straight edges are  $\frac{3}{8}$  x  $2\frac{1}{2}$ " and in lengths of 3, 4, 5 and 6-ft., but we supply other sizes on order.

3-ft. straight edges, each....\$ 8.00	5-ft. straight edges, each....\$12.00
4-ft. straight edges, each.... 10.50	6-ft. straight edges, each.... 14.50

Other sizes to order.



## Acme Improved Automatic Tacker, No. 140

### 8 Times Faster Than Hammer and Tack

No screen door manufacturer can see this tacker and not realize the great saving of time and labor it makes possible. To use it once is convincing proof of its many advantages. If you have used other tacking devices, you know their many shortcomings and inconveniences. They are not positive in their action, they are not applicable to all kinds of work, and they cannot be reloaded quickly.

The Automatic Screen Tacker will not clog. It is guaranteed to keep in perfect order. It can be used on plain as well as rabbited screen doors, and can be equipped with stretching points if desired.

It refills twenty times faster than any other machine now on the market. No parts to take out when loading. Just slip one strip of staples into the back of the machine and it is ready for action.



SHIPPED ON APPROVAL  
The Original Screen Tacker

### PRICES

ACME Automatic Screen Tacker. \$6

### STAPLES

Put Up 5,000 in a Package

6 Packages in carton, pkg.	\$2.40
12 " " " "	2.15
25 " " " "	1.90
50 " " box " "	1.75
100 " " " " "	1.62½
200 " " case " "	1.55
600 " per package..	1.50
1,000 " " " " "	1.45

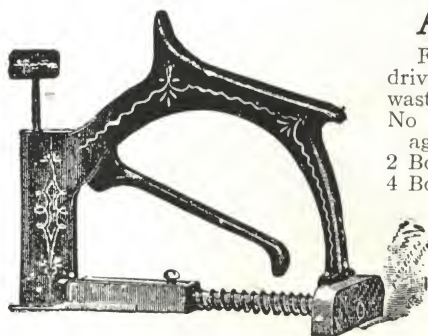


Price, \$50.00

## SCREEN WIRE STRETCHER

A big help in building screens, storm sash and doors. Table built entirely of metal, amply braced. These move parallel by turning crank. Operator moves clamping block to respective marks, places material and clamps up by turning crank. Boring and dowing done while in clamp. Takes frames up to 5 ft. wide and 7 ft. long. Can be built larger on order.

A very convenient and quick operating device for stretching screen wire. It stretches the wire and holds it while tacking, until it is released. It is operated entirely by foot, and works faster and far better than home made devices. Make your screen 100% Perfect. Will take any width wire up to 48 inches.



## Automatic Point Driver

Five times faster than a hammer or ordinary driver. Saves time and temper. No points wasted. Price \$4.50. Discount in quantities.

No 1 Points, per box containing nine packages, 5,000 each ..... \$7.00  
 2 Box Lots, per box ..... 6.90  
 4 Box Lots, per box ..... 6.75  
 8 Box Lots, per box ..... 6.50  
 16 Box Lots, per box ..... 6.25  
 Prices on larger quantities on request.

## Glazier Points—Solid Zinc and Zinc Coated

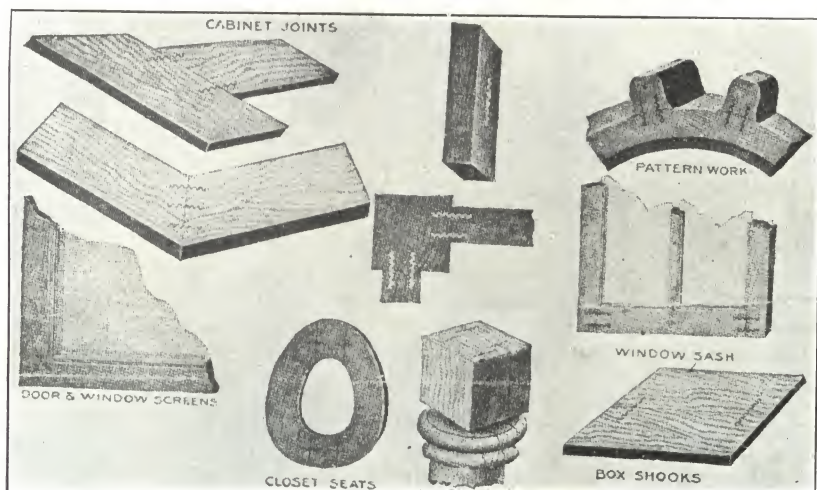
### Traingles and Sharps

QUANTITY	PURE ZINC		ZINC COATED	
	F. O. B., N. Y.	F. O. B., San Fran.	F. O. B., N. Y.	F. O. B., San Fran.
50 Pound Lot, per pound.....	\$0.25	\$0.28	\$0.21	\$0.24
100 Pound Lot, per pound.....	.24	.27	.20	.23
300 Pound Lot, per pound.....	.23	.26	.19	.21
500 Pound Lot, per pound.....	.22	.25	.18	.20
1000 Pound Lot, per pound.....	.21	.24	.17	.19

When ordering, specify the size required.

## Markwell's Superior Corrugated Joint Fastener

Illustrating just a few of the many uses to which they can be put.



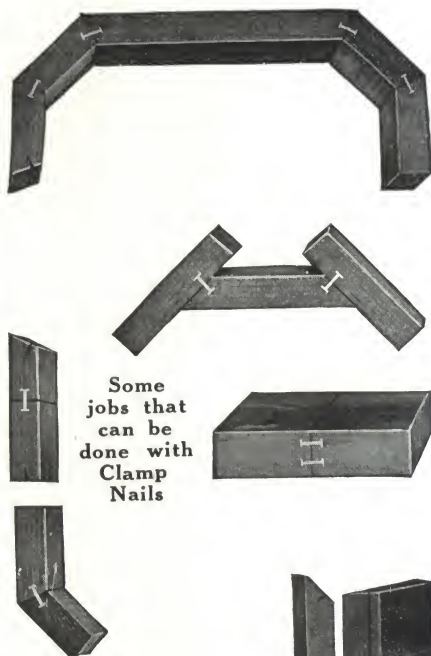
1/4" No. 5 Saw Edge Divergent, per 1000.....	\$1.50
3/8" No. 5 Saw Edge Divergent, per 1,000.....	1.70
1/2" No. 5 Saw Edge Divergent, per 1,000.....	1.80
5/8" No. 5 Saw Edge Divergent, per 1,000.....	2.20
3/4" No. 5 Saw Edge Divergent, per 1,000.....	2.35
10,000 Lots, List Price Less.....15%	50,000 Lots, List Price Less.....25%
25,000 Lots, List Price Less.....20%	100,000 Lots, List Price Less.....20%

Special prices on 100-pound kegs.



## Clamp Nails Are Big Time Savers

Cut a Slot, Drive in a Clamp Nail, Wide End First. That's All.

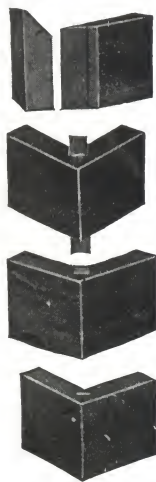


Some  
jobs that  
can be  
done with  
Clamp  
Nails

Here is the biggest little help that has yet been produced for the cabinet maker. Every shop has its mitering problems, but the Clamp Nail solves them all. You are welcome to test this statement to your heart's content. If it is the truth, you are on the way to the saving of hours of tedious and expensive labor and to the reduction of your shop costs more than appears on the surface.

The use of the Clamp Nail is the simplest thing in the world. Only the ordinary machine work is required. A saw kerf is made with a 22-gauge saw, cutting 5/16-inch deep across the face of the joint, gauging from the face side of the work. Then drive in a Clamp Nail from each end of the joint.

When using parts that are more than one inch in thickness, we recommend the making of two saw kerfs and using two Clamp Nails instead of one. See next page for sizes, styles and price of Clamp Nails.





 $\frac{9}{16}$  Inch Wide**No. 9**For General Cabinet  
Work.Lumber of Medium  
Thickness.

Made with Round Ends Only.

**No. 10**  
For General Cabinet  
Work.Lumber of Medium  
Heavy Thickness.

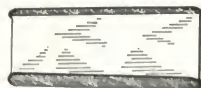
Made with Straight Ends Only.

 $\frac{11}{16}$  Inch Wide**No. 11**

For Caskets, Etc.

Lumber up to One Inch  
in Thickness.

Made with Round Ends Only.

 $\frac{5}{8}$  Inch Wide**Number of Clamp Nails per pound**

Length	Width	No. 9	No. 10	No. 11	Small Pkgs. Per Lb.	100-Lb. Pkgs.
$\frac{3}{8}$ inch	$\frac{9}{16}$ inch	480	.....	.....	\$0.75	\$52.50
$\frac{1}{2}$ inch	$\frac{9}{16}$ inch	320	.....	.....	.73	50.50
$\frac{5}{8}$ inch	$\frac{9}{16}$ inch	280	.....	.....	.70	47.50
$\frac{3}{4}$ inch	$\frac{9}{16}$ inch	240	212	.....	.67	45.00
$\frac{7}{8}$ inch	$\frac{9}{16}$ inch	200	.....	.....	.65	42.50
1 inch	$\frac{9}{16}$ inch	160	145	.....	.62	40.00
$1\frac{1}{4}$ inch	$\frac{9}{16}$ inch	140	.....	.....	.60	37.50
$1\frac{1}{2}$ inch	$\frac{9}{16}$ inch	120	.....	.....	.62	25.00
$1\frac{3}{4}$ inch	$\frac{9}{16}$ inch	100	.....	.....	.56	33.75
2 inch	$\frac{9}{16}$ inch	80	.....	.....	.55	32.50
$2\frac{1}{2}$ inch	$\frac{9}{16}$ inch	70	.....	.....	.52	30.00
3 inch	$\frac{9}{16}$ inch	60	.....	.....	.50	27.50
$1\frac{1}{4}$ inch	$\frac{5}{8}$ inch	.....	127	.....	.60	37.50
$1\frac{1}{2}$ inch	$\frac{5}{8}$ inch	.....	108	.....	.67	35.00
$1\frac{3}{4}$ inch	$\frac{5}{8}$ inch	.....	90	.....	.66	33.75
2 inch	$\frac{5}{8}$ inch	.....	72	.....	.65	32.50
$1\frac{1}{4}$ inch	$\frac{11}{16}$ inch	.....	.....	114	.57	35.00
$1\frac{1}{2}$ inch	$\frac{11}{16}$ inch	.....	.....	98	.55	32.50
$1\frac{3}{4}$ inch	$\frac{11}{16}$ inch	.....	.....	80	.53	31.25
2 inch	$\frac{11}{16}$ inch	.....	.....	65	.52	30.00
$2\frac{1}{2}$ inch	$\frac{11}{16}$ inch	.....	.....	55	.50	27.50
3 inch	$\frac{11}{16}$ inch	.....	.....	48	.47	25.00
$3\frac{1}{2}$ inch	$\frac{11}{16}$ inch	.....	.....	40	.47	25.00
4 inch	$\frac{11}{16}$ inch	.....	.....	33	.47	25.00

NOTE: Always specify the length and style desired.

Bulk packages 25 lbs., 50 lbs., and 100 lbs. Smaller packages to order.

Terms: NET 30 days, F. O. B. Chicago.

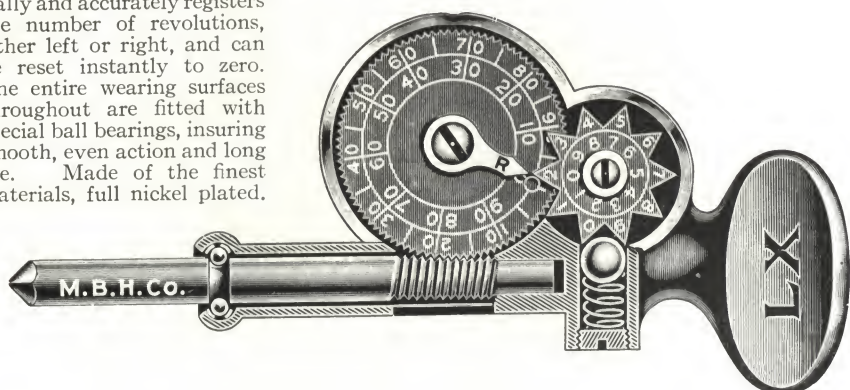
Orders amounting to less than \$5.00 cash with order or C. O. D.

Deliveries: Freight, Express, Parcel Post.

Price lists subject to change without notice.

## LX Ball Bearing Double Speed Indicator

The smaller dial, automatically and accurately registers the number of revolutions, either left or right, and can be reset instantly to zero. The entire wearing surfaces throughout are fitted with special ball bearings, insuring smooth, even action and long life. Made of the finest materials, full nickel plated.



Price.....\$2.50 each

### Rules for Calculating the Speed and Diameter of Pulleys

Rule—Multiply together the speed and diameter known of one pulley; divide the product of the known quantity of the other pulley, the result will be the quantity sought, be it speed or diameter.

Problem 1. The diameter of the driven being given, to find its number of revolutions.

Rule—Multiply the diameter of the driver by its number of revolutions, and divide the product by the diameter of the driven, the quotient will be the number of revolutions of the driven.

Problem 2. The diameter and revolutions of the driver being given, to find the diameter of the driven, that shall make any given number of revolutions in the same time.

Rule—Multiply the diameter of the driver by its number of revolutions, and divide the product by the number of revolutions of the driven; the quotient will be its diameter.

Problem 3. To ascertain the size of the driver.

Rule—Multiply the diameter of the driven by the number of revolutions you wish it to make, and divide the product by the revolutions of the driver; the quotient will be the size of the driver.

### Examples

You put a machine in your mill, and your main shaft running say 300 turns, what diameter of pulley is required to drive the machine? Say the tight pulley has a diameter of 10 inches, and you should run 900 revolutions; both quantities being known of this pulley, you apply the rule, and multiply them together:  $900 \times 10$  gives a product of 9,000, this divided by 300, the known quantity of the other pulley, gives a result of 30, which is the diameter sought.

A 30-inch pulley making 180 revolutions per minute, drives a counter shaft with a 12-inch pulley. What is the speed of the latter?

$$180 \times 30 \div 12 = 450 \text{ revolutions per minute.}$$

A counter shaft is to make 450 revolutions per minute, driven by a 30-inch pulley making 180 revolutions per minute. What will be the diameter of counter shaft pulley?

$$180 \times 30 \div 450 = 12 \text{ inches.}$$

What will be the diameter of a pulley making 180 revolutions per minute, to drive a 12-inch pulley 450 revolutions per minute?

$$450 \times 12 \div 180 = 30\text{-inch pulley.}$$

## Semi Steel Pulleys

When ordering, observe the following:

Dimensions and other details should be in the following order: Diameter, width of face, straight or crown, bore, set screws or keyway, single or double belt.

If pulley is special, send sketch showing exact dimensions of special features.

State if set screws or keyways are wanted; if both are required, whether set screws are to be on key.

Driving pulleys for shifting belt should have straight face, and for nonshifting belt should have crown face.

Tight and loose pulleys should have crown face. Hubs of tight and loose pulleys are faced, and loose pulley bores are reamed.

When so ordered, loose pulleys will be bushed, or provided with solid or split sleeve.

Prices quoted on bushings on receipt of inquiry and specifications.



**Solid Single Arm**

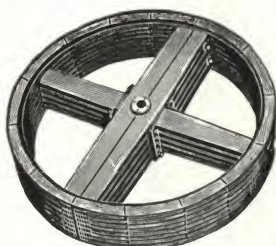
Dia.	Double Belt	Double Belt	Double Belt	Double Belt	Double Belt	Double Belt	Double Belt
	3	4	5	6	7	8	9
6	\$ 2.50	\$ 2.80	\$ 3.15	\$ 3.60	\$ 4.10	\$ 4.55	\$ 5.05
7	2.70	3.05	3.50	3.95	4.40	4.90	5.35
8	2.90	3.35	3.80	4.25	4.75	5.25	5.80
9	3.20	3.65	4.15	4.65	5.20	5.75	6.30
10	3.45	3.95	4.45	5.00	5.55	6.15	6.80
11	3.70	4.25	4.80	5.40	6.00	6.65	7.30
12	3.95	4.55	5.15	5.80	6.45	7.15	7.85
13	4.20	4.85	5.50	6.20	6.90	7.65	8.40
14	4.50	5.20	5.95	6.70	7.50	8.30	9.10
15	4.80	5.55	6.35	7.15	8.00	8.85	9.75
16	5.10	5.80	6.60	7.45	8.50	9.20	10.10
17	5.40	6.25	7.10	8.00	8.90	9.85	10.80
18	5.70	6.65	7.60	8.55	9.55	10.55	11.60
19	6.05	7.05	8.10	9.15	10.25	11.35	12.40
20	6.40	7.45	8.55	9.65	10.80	11.95	13.15
21	6.75	7.85	9.00	10.15	11.35	12.55	13.80
22	7.10	8.30	9.50	10.75	12.00	13.30	14.60
23	7.50	8.75	10.05	11.35	12.70	14.05	15.45
24	7.90	9.25	10.60	12.00	13.40	14.85	16.30
25	8.35	9.75	11.20	12.65	14.15	15.65	17.20
26	8.80	10.30	11.80	13.35	14.90	16.50	18.10
27	9.30	10.85	12.45	14.05	15.70	17.35	19.05
28	9.80	11.45	13.10	14.80	16.50	18.25	20.00

**Additional List Price Per Pair  
Tight and Loose Pulleys**

Diameter Inches	Width of Face—Inches						
	3 to 4	5 to 6	7 to 8	9 to 10	11 to 12	13 to 14	15 to 16
2 to 9.....	\$1.30	\$2.00	\$3.00	\$4.50	\$6.00	.....	.....
10 to 15.....	1.50	2.30	3.40	5.00	7.00	.....	.....
16 to 20.....	2.10	2.90	4.00	5.50	7.50	.....	.....
21 to 30.....	3.30	4.10	5.20	6.80	9.10	.....	.....
31 to 42.....	4.50	5.50	6.90	9.00	12.10	.....	.....
43 to 60.....	6.00	7.40	9.30	15.80	15.80	.....	.....



## Wood Split Pulleys



Diam.	Face	Price	Diam.	Face	Price	Diam.	Face	Price	Diam.	Face	Price
4	3	\$2.80	11	5	\$4.00	18	4	\$5.80	30	4	\$9.85
	4	2.90		6	4.50		5	6.55		5	11.30
	5	3.10		8	5.30		6	7.30		6	12.90
	6	3.30		10	6.10		8	8.80		8	16.00
5	3	2.85		12	6.90		10	10.30		10	19.10
	4	2.95	12	3	3.75		12	11.80		12	22.20
	5	3.20		4	4.00	19	4	6.10		14	25.30
	6	3.40		5	4.45		5	6.90		16	28.40
6	3	2.90		6	4.90		6	7.70	32	4	10.50
	4	3.00		8	5.80		8	9.30		5	12.20
	5	3.25		10	6.70		10	10.90		6	13.90
	6	3.50		12	7.60		12	12.50		8	17.30
	8	4.00	13	4	4.30	20	4	6.40		10	20.70
7	3	2.95		5	4.80		5	7.25		12	24.10
	4	3.05		6	5.30		6	8.10		14	27.50
	5	3.35		8	6.30		8	9.80		16	30.90
	6	3.60		10	7.30		10	11.50	36	4	12.10
	8	4.15		12	8.30		12	13.20		5	14.10
8	3	3.00	14	4	4.60	22	4	7.00		6	16.10
	4	3.10		5	5.15		5	7.95		8	20.10
	5	3.40		6	5.70		6	8.90		10	24.10
	6	3.70		8	6.80		8	10.80		12	28.10
	8	4.30		10	7.90		10	12.70		14	32.10
	10	4.90		12	9.00		12	14.60		16	36.10
	12	5.50	15	4	4.90	24	4	7.70	40	6	18.30
9	3	3.10		5	5.50		5	8.80		8	22.90
	4	3.25		6	6.10		6	9.90		10	27.50
	5	3.60		8	7.30		8	12.10		12	32.10
	6	3.90		10	8.50		10	14.30		14	36.70
	8	4.55		12	9.70		12	16.50		16	41.30
	10	5.20	16	4	5.20	26	4	8.40	42	6	19.60
	12	5.85		5	5.85		5	9.65		8	24.60
10	3	3.25		6	6.50		6	10.90		10	29.60
				8	7.80		8	13.40		12	34.60
	4	3.40		10	9.10		10	15.90		14	39.60
	5	3.75		12	10.40		12	18.40		16	44.60
	6	4.10	17	4	5.50	28	4	9.10	48	6	23.80
	8	4.80		5	6.20		5	10.50		8	30.00
	10	5.50		6	6.90		6	11.90		10	36.20
	12	6.20		8	8.30		8	14.70		12	42.40
11	3	3.50		10	9.70		10	17.50		14	48.60
	4	3.70		12	11.10		12	20.30		16	54.80

## W. & M. Tight and Loose Pulleys

### COMPLETE PULLEY



Fig. 11831A

one inside the ends of the sleeve, marked B, thus combining to give over three times the bearing surface of the ordinary loose pulley. This double bearing surface, one inside and one outside the sleeve, is double in another sense in that bearing surfaces on both sides of the shaft are always maintained. Carrying this pull of the belt at two points on opposite sides of the shaft makes it practically impossible to squeeze the oil out from the bearing surfaces.

A large annular oil chamber is placed in the sleeve which not only carries a large quantity of oil, but carries it in such a manner that it is put where it is needed. Centrifugal force will throw the oil between the bearing surfaces and as the higher the speed, the greater this force, it follows that the lubrication is greatest when most needed.

Each pulley is made in two halves, fastened together with heavy screws, a paper gasket first being placed between the halves to make the turned joint oil tight. These two halves encase a third part, the sleeve, which is hidden from view in the complete pulley.

The sleeve is set screwed tight to the shaft and provides the bearing for the pulley. The pulley proper does not touch on the shaft, much less require a bearing on it, consequently a badly worn shaft is not a hindrance to the immediate installation of one of these pulleys. Enough shaft to carry the sleeve with its set screws, is all that is needed.

Since the sleeve becomes, in effect, the shaft on which the pulley revolves, it is seen at a glance that an increased bearing is provided because of the increase in diameter over that of the shaft proper. This is not, however, the only increase in bearing surface, nor the most important one. The outside diameter of the sleeve (bearing surface marked A in the illustration below), is supplemented by

### PULLEY TAKEN APART

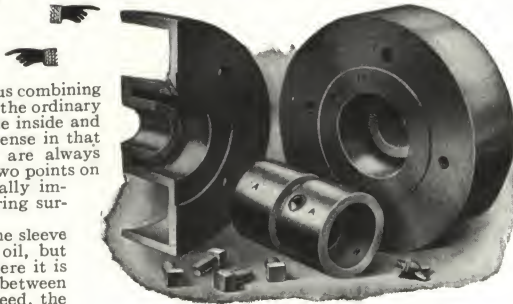


Fig. 11831B

Diam. Face	Price
5 x 3.....	\$15.00
5 x 4.....	16.00
5 x 5.....	16.50
6 x 2.....	14.50
6 x 3.....	15.00
6 x 4.....	16.00
7 x 3.....	17.50
7 x 4.....	18.00
7 x 5.....	18.50
7 x 6.....	19.75
7 x 7.....	20.00
8 x 3.....	18.50
8 x 4.....	19.00
8 x 5.....	20.00
8 x 6.....	21.25
8 x 7.....	23.50
8 x 8.....	23.75
9 x 3.....	19.50
9 x 4.....	20.50
9 x 5.....	21.50
9 x 6.....	22.50
9 x 7.....	24.50
9 x 8.....	24.75
10 x 3.....	21.00

Diam. Face	Price
10 x 4.....	\$22.00
10 x 5.....	23.00
10 x 6.....	23.50
10 x 7.....	25.75
10 x 8.....	26.00
11 x 3.....	22.00
11 x 4.....	22.50
11 x 5.....	23.50
11 x 6.....	24.00
11 x 7.....	28.00
11 x 8.....	28.50
12 x 3.....	23.75
12 x 4.....	24.00
12 x 5.....	26.75
12 x 6.....	27.00
12 x 7.....	31.00
12 x 8.....	31.50
12 x 9.....	34.00
12 x 10.....	34.50
13 x 6.....	33.00
13 x 7.....	33.50
13 x 8.....	34.00
13 x 9.....	36.00
13 x 10.....	36.50

Diam. Face	Price
14 x 4.....	\$29.50
14 x 5.....	30.00
14 x 6.....	30.50
14 x 7.....	34.50
14 x 8.....	35.00
14 x 9.....	39.00
14 x 10.....	40.00
15 x 4.....	31.50
15 x 5.....	32.00
15 x 6.....	32.50
15 x 7.....	36.00
15 x 8.....	36.50
16 x 4.....	32.50
16 x 5.....	33.00
16 x 6.....	33.50
16 x 7.....	37.50
16 x 8.....	38.00
16 x 9.....	41.50
16 x 10.....	42.00
18 x 4.....	36.00
18 x 5.....	36.50
18 x 6.....	37.00
18 x 7.....	41.00
18 x 8.....	41.50

Prices, Net, 30 Days: F. O. B. Grand Rapids, Mich.

**Flange Pulleys** are special and take following extra prices. We do not consider flanges necessary on the W. & M. "NELSON PATENT" Loose Pulley under 20-inch diameter.

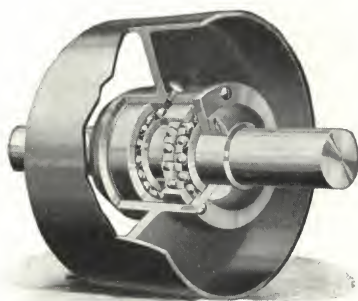
Up to 8-inch diameter.....	\$5.00	Over 10-inch to 14-inch diameter.....	\$ 8.00
Over 8-inch to 10-inch diameter.....	6.00	Over 14-inch to 20-inch diameter.....	12.00

All pulleys other than even inches in width of face will take price of next size wider pulley.

Diameters in price list above are standard. Diameters of pulleys not shown are special and take special prices, furnished on request. **BORE OF PULLEYS DOES NOT AFFECT PRICE.**

(Prices subject to change without notice.)

## Daggett Ball-bearing Loose Pulleys



One shut-down caused by a faulty loose pulley or friction clutch pulley will cost more than the difference in price between a ball-bearing and a plain loose pulley. A shut-down means not only a loss in production, but a loss of many dollars each minute your machines and employees are idle.

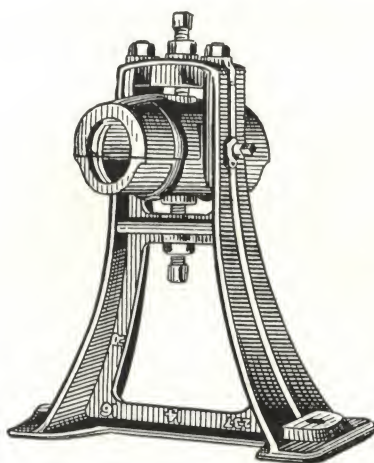
Ball-bearing Loose Pulleys are simple in construction, accurately machined, and will carry a belt at any working load or speed without heating. The bearings are dust-proof and require no attention except renewal of lubricant, four to six times a year, according to speed conditions. Clean as a whistle—cannot wear shaft—satisfaction guaranteed.

Diam. in. Ins.	Face	1 $\frac{3}{16}$ "- 1 $\frac{1}{4}$ "	1 $\frac{7}{16}$ "- 1 $\frac{1}{2}$ "	1 $\frac{11}{16}$ "- 1 $\frac{3}{4}$ "	1 $\frac{15}{16}$ "- 2"	2 $\frac{1}{8}$ "- 2 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "- 2 $\frac{1}{2}$ "	2 $\frac{11}{16}$ "- 2 $\frac{3}{4}$ "	2 $\frac{15}{16}$ "- 3"
6x	3"	\$15.50	\$18.55	\$20.00	\$21.95	.....	.....	.....	.....
	4"	15.95	19.00	20.45	22.40	.....	.....	.....	.....
	5"	16.45	19.50	20.95	22.90	.....	.....	.....	.....
	6"	17.15	20.02	21.65	23.60	.....	.....	.....	.....
7x	3"	15.80	18.85	20.30	22.25	\$25.35	.....	.....	.....
	4"	16.35	19.40	20.85	22.80	25.90	.....	.....	.....
	5"	17.00	20.05	21.50	23.45	26.55	.....	.....	.....
	6"	17.65	20.70	22.15	24.10	27.20	.....	.....	.....
8x	3"	16.10	19.15	20.60	22.55	25.65	\$30.70	.....	.....
	4"	16.80	19.85	21.30	23.25	26.35	31.40	.....	.....
	5"	17.45	20.50	21.95	23.90	27.00	32.05	.....	.....
	6"	18.10	21.15	22.60	24.55	27.65	32.70	.....	.....
9x	3"	.....	22.75	24.20	26.15	29.25	34.30	.....	.....
	4"	16.55	19.60	21.05	23.00	26.10	31.15	.....	.....
	5"	17.25	20.30	21.75	23.70	26.80	31.85	.....	.....
	6"	17.95	21.00	22.45	24.40	27.50	32.55	.....	.....
10x	3"	18.70	21.75	23.20	25.15	28.25	33.30	.....	.....
	4"	.....	23.35	24.80	26.75	29.85	34.90	.....	.....
	5"	16.95	20.00	21.45	23.40	26.50	31.55	41.65	47.15
	6"	17.65	20.70	22.15	24.10	27.20	32.25	42.35	47.85
11x	3"	18.40	21.45	22.90	24.85	27.95	33.00	43.10	48.60
	4"	19.20	22.25	23.70	25.65	28.75	33.80	43.90	49.40
	5"	.....	23.95	25.40	27.35	30.45	35.50	45.60	51.10
	6"	.....	25.95	27.40	29.35	32.45	37.50	47.60	53.10
12x	3"	17.30	20.35	21.80	23.75	26.85	31.90	42.00	47.50
	4"	18.10	21.15	22.60	24.55	27.65	32.70	42.80	48.30
	5"	18.90	21.95	23.40	25.35	28.45	33.50	43.60	49.10
	6"	19.80	22.85	24.30	26.25	29.35	34.40	44.50	50.00
14x	3"	.....	24.65	26.10	28.05	31.15	36.20	46.30	51.80
	4"	.....	26.65	28.10	30.05	33.15	38.20	48.30	53.80
	5"	17.65	20.70	22.15	24.10	27.20	32.25	42.35	47.85
	6"	18.55	21.60	23.05	25.00	28.10	33.15	43.25	48.75
15x	3"	19.45	22.50	23.95	25.90	29.00	34.05	44.15	49.65
	4"	20.50	23.55	25.00	26.95	30.05	35.10	45.20	50.70
	5"	.....	25.45	26.90	28.85	31.95	37.00	47.10	52.60
	6"	.....	27.65	29.10	31.05	34.10	39.20	49.30	54.80
16x	3"	18.45	21.50	22.95	24.90	28.00	33.05	43.15	48.65
	4"	19.50	22.55	24.00	25.95	29.05	34.10	44.20	49.70
	5"	20.60	23.65	25.10	27.05	30.15	35.20	45.30	50.80
	6"	21.70	24.75	26.20	28.15	31.25	36.30	46.40	51.90
18x	3"	.....	27.10	28.55	30.50	33.60	38.65	48.75	54.25
	4"	.....	29.55	31.00	32.95	36.05	41.10	51.20	56.70
	5"	18.90	21.95	23.40	25.35	28.45	33.50	43.60	49.10
	6"	20.00	23.05	24.50	26.45	29.55	34.60	44.70	50.20
20x	3"	21.20	24.25	25.70	27.65	30.75	35.80	45.90	51.40
	4"	22.40	25.45	26.90	28.85	31.95	37.00	47.10	52.60
	5"	.....	27.90	29.35	31.30	34.40	39.45	49.55	55.05
	6"	.....	30.55	32.00	33.95	37.05	42.10	52.20	57.70

Other sizes on application.



# Patent Universal Ring Oiling Ball and Socket Hanger



**BABBITTED AND  
REAMED BEARINGS**

This Hanger is designed upon lines which give the greatest possible strength, leaving ample sufficiency of metal at the points where the greatest strain takes place, with a perfect appearance of symmetry.

These hangers can be used as floor stands by simply inverting the bearing, and can also be used as adjustable Bracket Hangers by turning the bearing half around.

It is universally acknowledged that the proportion and symmetry of this Hanger cannot be excelled.

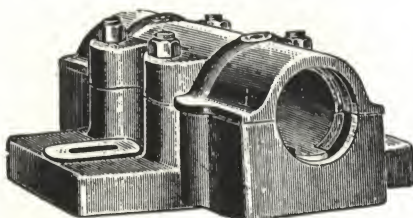
## Price List of Universal Hanger

**Ball and Socket Bearings Babbitted and Reamed**

SHAFT SIZE	RANGE OF DROPS IN INCHES				
	4 $\frac{3}{4}$ -5 $\frac{1}{4}$	6-8	8-10	11-13	14-16
1 $\frac{15}{16}$ .....	\$3.25	\$3.50	\$3.75	\$ 4.25	\$ 4.75
1 $\frac{13}{16}$ .....	4.00	4.50	4.75	5.25	5.75
1 $\frac{7}{16}$ .....	4.50	5.00	5.25	5.75	6.25
1 $\frac{11}{16}$ .....		6.00	6.25	6.75	7.25
1 $\frac{15}{16}$ .....		7.00	7.25	7.75	8.25
2 $\frac{3}{16}$ .....			9.25	9.75	10.50
2 $\frac{7}{16}$ .....			10.25	10.75	11.50
2 $\frac{11}{16}$ .....			12.50	14.00	15.00
2 $\frac{15}{16}$ .....			14.50	16.00	17.00
3 $\frac{3}{16}$ .....			19.50	20.50	22.50
3 $\frac{7}{16}$ .....			21.50	22.50	24.50
3 $\frac{11}{16}$ .....			25.50	26.50	28.50
3 $\frac{15}{16}$ .....			27.50	28.50	30.50
4 $\frac{3}{16}$ .....				36.00	38.00
4 $\frac{7}{16}$ .....				39.00	41.00
4 $\frac{11}{16}$ .....				43.50	46.00
4 $\frac{15}{16}$ .....				46.00	48.50

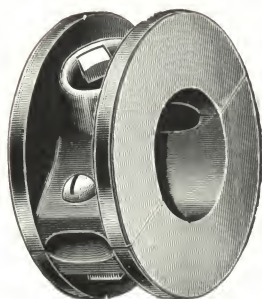
## Rigid, Ring Oiling Pillow Block

Bearings Babbitted and Reamed



Size	Price	Size	Price
1 $\frac{3}{16}$ .....	\$3.75	3 $\frac{11}{16}$ .....	\$18.00
1 $\frac{7}{16}$ .....	4.65	3 $\frac{15}{16}$ .....	22.00
1 $\frac{11}{16}$ .....	5.25	4 $\frac{3}{16}$ .....	26.50
1 $\frac{15}{16}$ .....	6.00	4 $\frac{7}{16}$ .....	30.00
2 $\frac{3}{16}$ .....	7.00	4 $\frac{11}{16}$ .....	35.00
2 $\frac{7}{16}$ .....	8.00	4 $\frac{15}{16}$ .....	40.00
2 $\frac{11}{16}$ .....	9.25	5 $\frac{7}{16}$ .....	58.00

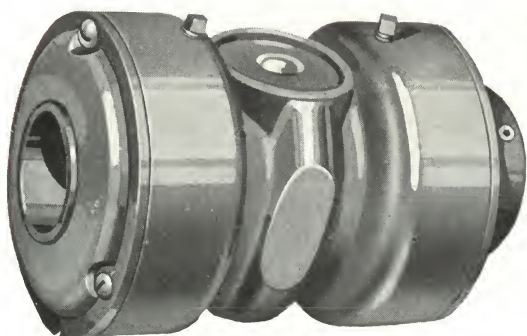
## Safety Collars



Size	Price Each
1 $\frac{15}{16}$ .....	\$0.62
1.....	.65
1 $\frac{1}{8}$ .....	.75
1 $\frac{3}{8}$ .....	.80
1 $\frac{1}{4}$ .....	.85
1 $\frac{5}{8}$ .....	.90
1 $\frac{3}{4}$ .....	.95
1 $\frac{7}{8}$ .....	1.00
1 $\frac{1}{2}$ .....	1.05
1 $\frac{9}{16}$ .....	1.10
1 $\frac{5}{8}$ .....	1.15

For prices of Split Collars, add 50 per cent to list price.

## Daggett Ball Bearing Hanger Box



It is designed to fit any hanger frame in general use. Simple in construction, easily installed, and requires only a small amount of lubricant three or four times a year. It is dust-proof, noiseless, can be operated at any shaft speed without heating and cannot wear the shaft.

### PRICE LIST

Shaft Size

1 $\frac{3}{16}$	1 $\frac{7}{16}$	1 $\frac{11}{16}$	1 $\frac{15}{16}$	2 $\frac{3}{16}$	2 $\frac{7}{16}$	2 $\frac{11}{16}$	2 $\frac{15}{16}$
\$16.25	\$19.50	\$20.50	\$23.50	\$30.00	\$35.00	\$43.00	\$47.00

## The Productimeter

Model "G" Series

### Lumber Meters

**For use on Moulders, Matchers, Planers, Flooring Machines, Self-Feed Rip Saws, Resaws, Stickers and Jointers.**

All day long without attention, week in and week out, the Productimeter is measuring the output of thousands of wood-working plants throughout the country.

It is almost human in a measure. Does not guess or loose count or lay down on the job. Works honestly; does not need watching. A constant tally on your production.

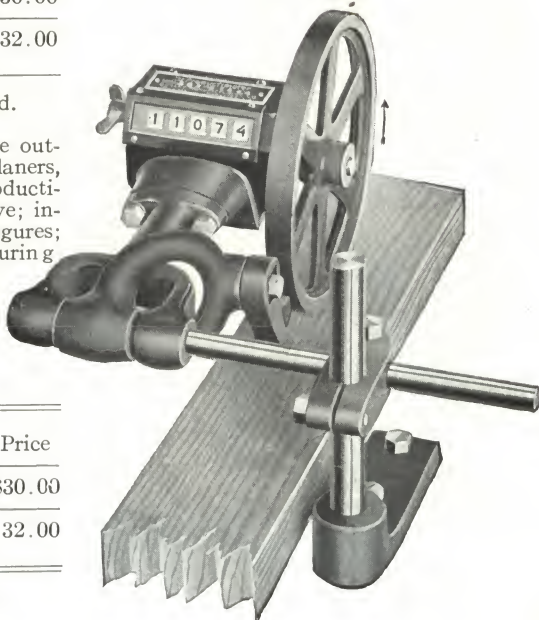
A lumber meter designed for the feed end of moulders, matchers, planers, flooring machines, etc. These Productimeters will speed up production; give immediate records of performance; prevent costly over and under runs; provide accurate records for costs and wage rates or price rates; eliminate idle machines; increase efficiency; increase profits.



Model	Capacity	Weight	Price
5-G-1	99,999 feet	17 $\frac{1}{4}$ lbs.	\$30.00
6-G-1	999,999 feet	17 $\frac{3}{4}$ lbs.	32.00

Furnished with lock when desired.

A lumber meter designed for the out-feed end of moulders, matchers, planers, flooring machines, etc. These Productimeters have positive full gear drive; instantaneous reset; large prominent figures; brakes to prevent spinning of measuring wheel; adjustable attachment simplifying application; durable parts to withstand heavy duty; accuracy, insuring dependable results.



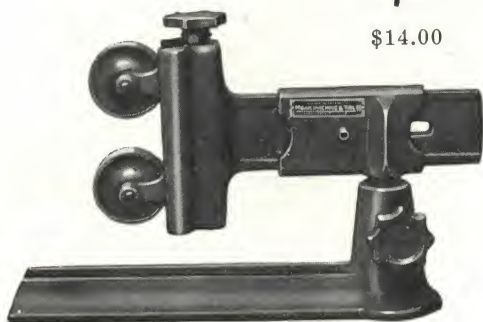
Model	Capacity	Weight	Price
5-G-2	99,999 feet	17 $\frac{1}{4}$ lbs.	\$30.00
6-G-2	999,999 feet	17 $\frac{3}{4}$ lbs.	32.00

Furnished with lock when desired.



## Wood Lathe Centers

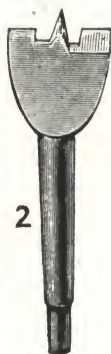
### Roller Back Rest No. 30



Indispensable for turning long work.  
Price .....\$35.00



1  
\$14.00



2  
\$12.00



3  
\$12.00



4  
\$8.00



5  
\$6.00

When ordering, send correct turning of bore you want the center to fit in, so as to enable us to get correct size of shank. Also give diameter of spur and length from shank to point.

### Lathe Rests and Sockets

Price, per pound.....\$0.75



### Back Rest for Turning Lathe No. 20

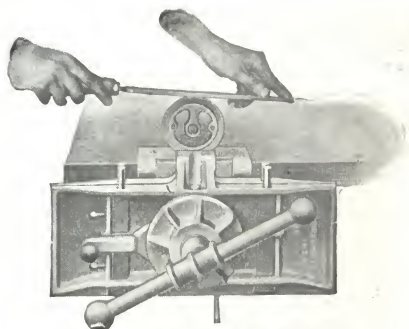
Price .....\$18.00

### No 219 Lathe Floor Stand

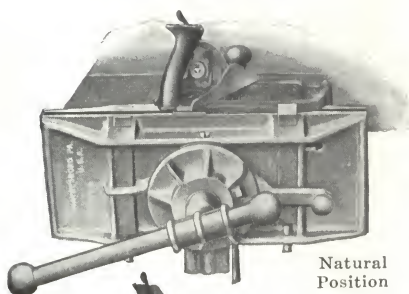
Price .....\$20.00

For the turning Chisels see page 103.

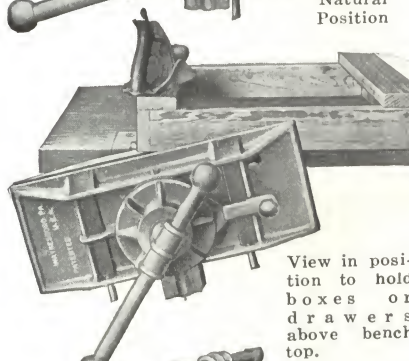




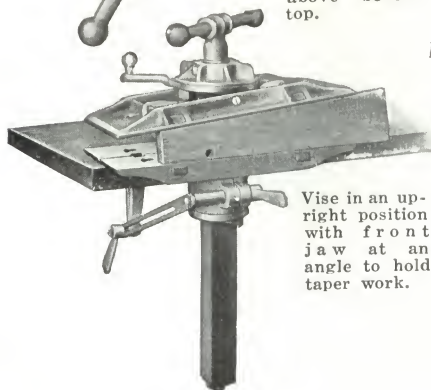
Metal Lined Jaws in Position



Natural Position



View in position to hold boxes or drawers above bench top.



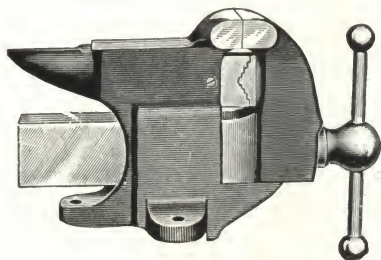
Vise in an upright position with front jaw at an angle to hold taper work.

## Emmert New Improved Universal Vise

- 1—All parts absolutely interchangeable.
- 2—Easily and quickly handled.
- 3—Special web construction of jaws gives greater strength by actual test with other vises. Jaws will not spring.
- 4—Jaws can be revolved in a complete circle and set at **any** point instead of only at fixed stops.
- 5—Jaws can be revolved without loosening or removing work, as in other vises.
- 6—Can be adjusted at either end for wedge shapes instead of only one end.
- 7—Taper adjustment quickly secured by large hand adjusting collar. Can be locked and securely held.
- 8—Has set of steel faced jaws firmly riveted in jaws for holding metal.
- 9—Jaws have opening capacity of 15 inches.
- 10—A flat rack bar clamping thru a slot in center is used instead of a round rod working thru a clamp nut to hold vise at any angle within 90 degrees of bench. This insures more rigid support.
- 11—Vises are all neatly painted. Attractive in appearance.
- 12—Fully guaranteed in every respect.

### Sizes and Prices

Vise No.	Size of Jaw	Opens	Weight	Price
1	7x18 in.	15 in.	86 lbs.	\$27.50
2	5x14 in.	12 in.	56 lbs.	25.00



## Rock Island Autovise

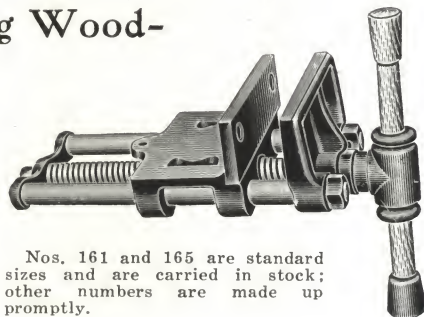
### Stationary Type

A strong vise, suitable for holding a variety of machinist's work and pipe. Can also be used for anvil.

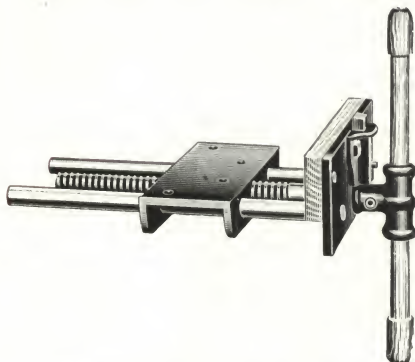
No.	Width Jaw	Capacity Pipe	Weight	List Vise	List Pipe Jaws
231	3"	1/8 to 1 1/2"	32 lbs.	\$10.00	\$1.30
232	4"	1/8 to 2"	65 lbs.	14.00	1.50

## Rock Island Quick Acting Wood- worker's Vise

No.	Length Jaw	Width Jaw	Opens	Weight	List Price
161	7 in.	4 in.	9 in.	26 lbs.	\$ 9.60
162	7 in.	4 in.	12 in.	27 lbs.	10.40
163	7 in.	4 in.	14 in.	28 lbs.	11.20
164	7 in.	4 in.	16 in.	28 lbs.	12.00
165	10 in.	4 in.	12 in.	29 lbs.	12.80
166	10 in.	4 in.	14 in.	29 lbs.	13.60
167	10 in.	4 in.	16 in.	30 lbs.	14.00
168	10 in.	4 in.	18 in.	30 lbs.	15.20
169	10 in.	4 in.	20 in.	31 lbs.	16.00



Nos. 161 and 165 are standard sizes and are carried in stock; other numbers are made up promptly.



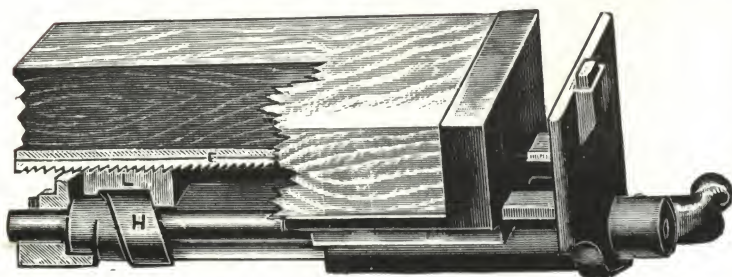
## Acme Woodworker's Vise

Where the quick-acting feature is not wanted, this is the best vise on the market.

The screw is cold rolled steel, front jaw is steel, frame or body is cast iron. The front jaw is faced with wood.

No.	Width Jaw	Opens	Weight	List Price
261	10 in.	9 in.	16 lbs.	\$4.00

## Lightning Grip Wood- worker's Vise



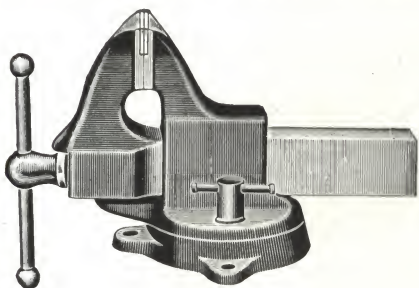
When the handle is in an upright position, the cam "H" allows the dog "L" to disengage the rack "E." This allows the front jaw to be moved freely and adjusted to the work. By moving the handle a quarter turn to the right, the cam forces the dog to engage in

the rack and locks securely. Can be furnished with or without a stop in the front jaw.

Vise No.	Width of Jaw, Inches	Jaw Opens, Inches	Weight, Pounds	List Price
19	7	7	29	\$10.00
17	9	12	47	12.00
WITH STOP IN FRONT JAW				
19A	7	7	30	\$11.00
17A	9	12	48	13.00



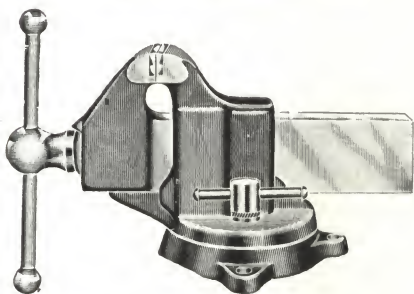
### ROCK ISLAND SWIVEL WOOD WORKER'S VISE



This vise can be turned in any position on an axis parallel with the floor, and is locked by a clamping bolt which works in a channel. The grip is positive, absolutely will not slip.

No.	Width Jaw	Opens	Weight	List Price
155	4 ¼ in.	9 in.	53 lbs.	\$21.25
156	4 ½ in.	11 in.	66 lbs.	22.50

### DIAMOND SWIVEL VISE

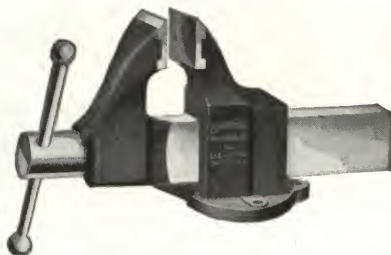


This is our standard swivel vise and we believe we have the best design on the market. Notice the lines of this vise.

These vises are heavy and the material is well distributed.

No.	Width Jaw	Opens	Weight	List Price
70	2 ½ in.	2 ½ in.	20 lbs.	\$12.00
71	3 in.	4 in.	28 lbs.	13.00
72	3 ½ in.	5 in.	38 lbs.	15.00
73	4 in.	6 in.	54 lbs.	17.00
74	4 ½ in.	6 ½ in.	65 lbs.	20.00
75	5 in.	7 ½ in.	90 lbs.	30.00
76	5 ½ in.	8 ½ in.	120 lbs.	38.00
77	6 in.	10 in.	136 lbs.	52.00
78	7 in.	12 in.	240 lbs.	70.00

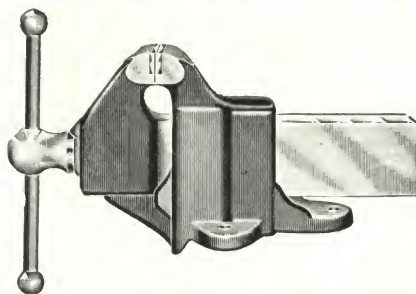
### ROCK ISLAND STATIONARY WOOD WORKER'S VISE



We have the best line of wood worker's vises on the market. It is absolutely the best designed vise of this type. The vise is low and sturdy. Workmen can work to advantage at this vise, which is impossible with some of the high patterns on the market.

No.	Width Jaw	Opens	Weight	List Price
151	4 ¼ in.	9 in.	48 lbs.	\$16.25
152	4 ½ in.	11 in.	60 lbs.	17.50

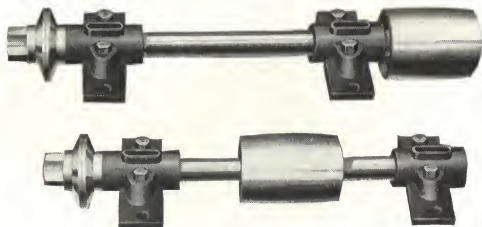
### DIAMOND STATIONARY VISE



This is our standard stationary base vise. It has all the qualities of design, strength and material of the Diamond Swivel base vise.

No.	Width Jaw	Opens	Weight	List Price
90	2 ½ in.	2 ½ in.	17 lbs.	\$ 9.00
91	3 in.	4 in.	22 lbs.	10.00
92	3 ½ in.	5 in.	28 lbs.	11.25
93	4 in.	6 in.	42 lbs.	12.75
94	4 ½ in.	6 ½ in.	54 lbs.	15.50
95	5 in.	7 ½ in.	75 lbs.	20.00
96	5 ½ in.	8 ½ in.	101 lbs.	30.00
97	6 in.	10 in.	135 lbs.	39.00
98	7 in.	12 in.	210 lbs.	55.00
67	8 in.	12 ½ in.	286 lbs.	75.00

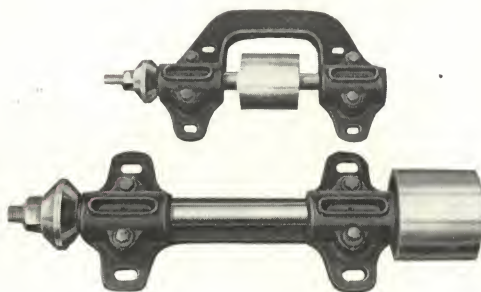
## Champion Ring Oiling Saw Mandrels



Champion Saw Mandrels are extra heavy, and are fitted with rigid Ring Oiling Pillow Blocks, which construction insures adequate oiling.

The Arbors are built of high grade machinery steel, fitted with heavy flanges. Pulleys are crowned and are always shipped on right-hand side when saw is running towards you, with left-hand thread unless otherwise ordered. Pulley can be furnished on left-hand side or on center if specially ordered.

Number of Mandrel	Diam. of Pulley	Face of Pulley	Diam. of Flange	Diam. of Shaft	Hole in Saw	Length of Shaft	Shipping Weight	No. 0 Saw Mandrel	\$
0	2	3	2½	¾	¾	20	14 lbs.	No. 1	3.00
1	2½	3½	3	1 1/16	1 ¼	20	22 lbs.	No. 2	4.10
2	3	4	3½	1 3/16	1 ½	23	30 lbs.	No. 3	4.60
3	3½	4½	4	1 5/16	1 ¾	25	35 lbs.	No. 4	6.70
4	4	5	4½	1 7/16	1 5/16	28	40 lbs.	No. 5	7.80
5	4½	5½	5	1 7/16	1 5/16	30	45 lbs.	No. 6	9.25
6	5	6	5½	1 7/16	1 5/16	32	50 lbs.	No. 7	\$ 9.75
7	5½	6½	6	1 7/16	1 5/16	34	60 lbs.	No. 8	10.30
8	6	7	6½	1 9/16	1 5/8	36	70 lbs.	No. 9	12.35
9	7	8	7	1 11/16	1 5/8	41	90 lbs.	No. 10	14.55
10	8	9	8	1 13/16	1 5/8	45	110 lbs.	No. 11	16.45
11	9	10	9	2 3/16	2	45	150 lbs.		24.70



## Connected Box Mandrels

Six different sizes of Mandrels are made as listed below.

They can be furnished with straight or yoke frame. The mandrel journal boxes are self-oiling. Notice that the caps of the mandrel journal boxes have set screw on each corner for adjustment, doing away with wood or paste-board liners.

### CONNECTED BOXES

No.	Extreme Length Inches	Length of Frame Inches	Distance from Center to Center of Bolt Holes Inches	Diam. of Arbor Inches	Diam. of Pulley Inches	Face of Pulley Inches	Diam. of Collars Inches	Size of Hole in Saw Inches	Size of Saw Inches	Wgt. Lbs.	Price Each
1	23½	17	13¾	1 15/16	3	4	3	¾	6 to 8	24	\$15.00
2	26½	19	14½	1 1/16	3½	4½	3	1	10 to 12	36½	17.00
3	28¾	20½	15¾	1 3/16	4	5	3½	1½	14 to 16	45	19.50
4	30¾	22	16½	1 5/16	4½	5½	3½	1¾	18	54½	22.00
4½	33¾	24	19	1 7/16	5	6	4	1 5/16	20 to 22	56	24.00
5	33½	24	19	1 7/16	5	6	4	1½	24 to 26	60	25.00
6	36½	26	20¾	1 9/16	6	7	4½	1½	28 to 30	78½	28.00

### YOKE

No.	Out to Out Boxes Inches	Diameter of Arbor Inches	Diameter of Pulley Inches	Face of Pulley Inches	Size of Collars Inches	Size of Hole in Saw Inches	Size of Saw Inches	Weight Lbs.	Price Each
1	10	15/16	2½	3	3	¾	6 to 8	18½	\$15.50
2	14	15/16	3	4	3	¾	6 to 8	27	17.00
3	16	1 1/16	3½	4½	3	1	10 to 12	36	18.50
4	18	1 3/16	4	5	3½	1½	14 to 16	45	21.00
5	20	1 5/16	4½	5½	3½	1¾	18	54½	22.50
5½	22	1 7/16	5	6	4	1 5/16	20 to 22	60½	25.00
6	22	1 7/16	5	6	4	1½	24 to 26	51	28.00
7	24	1 9/16	6	7	4½	1½	28 to 30	79	31.00

## Champion Lumber Gauge

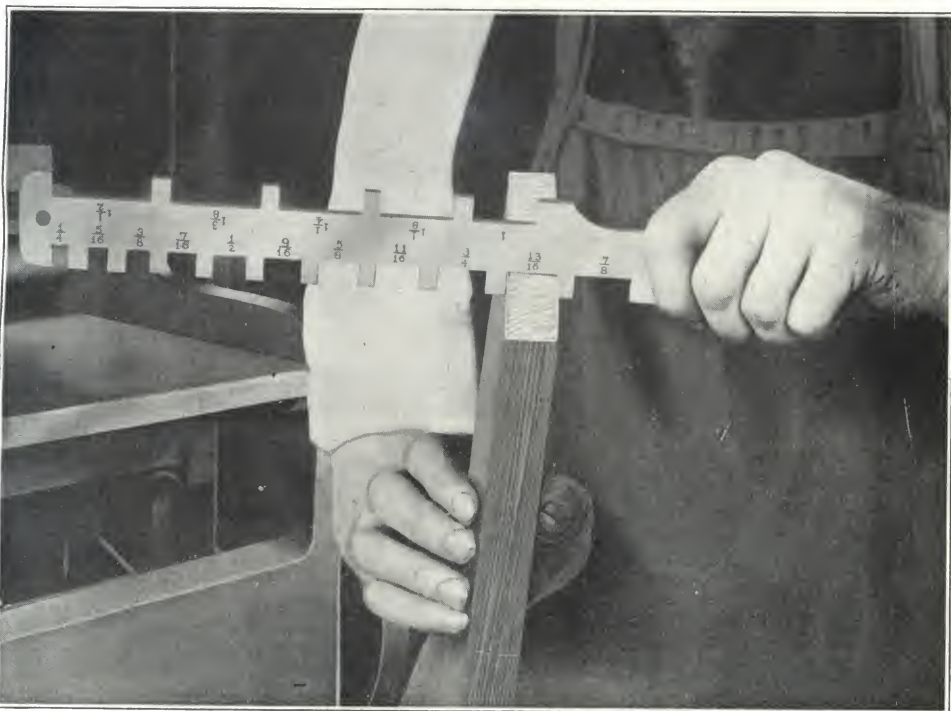
ACCURACY, not GUESSWORK, is the PARAMOUNT ISSUE now in the CONSUMPTION of LUMBER



The high cost prohibits inaccuracy in measurement. Set a standard size in your plant, work to known thicknesses—no more guesswork.

### The Champion Lumber Gauge

makes all this possible. You should have one at every planer and jointer. Figures are plainly marked at every size notch. No rule is necessary. Use a Champion Gauge and accuracy in your plant will be assured.



Made of Machinery Steel  $1\frac{1}{2}$ " x  $\frac{3}{8}$ " and is  $12\frac{1}{2}$ " long over all. Gauge is nicely finished to prevent rusting. Price, each..... **\$8.50**  
Special sizes to order.

## E. C. Veneer Gauge

GAUGE the Veneers that you buy!

and pay for what you get—

**How?**

By using the E. C. Veneer Gauge

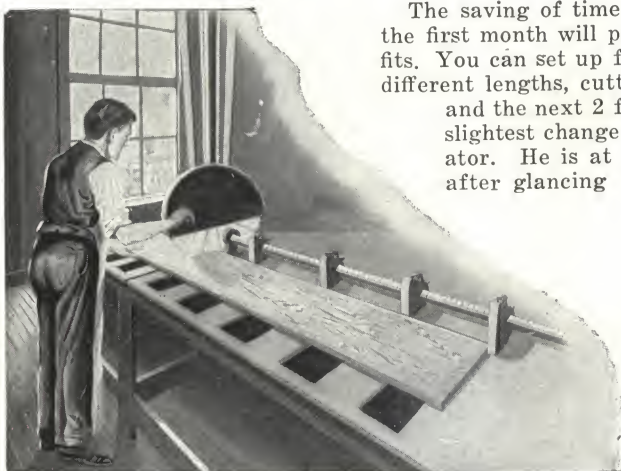


Do not let your men guess at the thickness! Furnish them with veneer gauges that are accurate.

**At \$6.50 each**

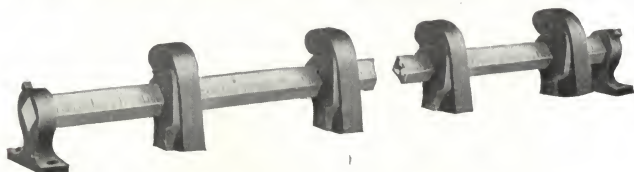


## Champion Swing Saw Gauge



The saving of time, lumber and money for the first month will pay for one of these outfits. You can set up for a half dozen or more different lengths, cutting a board 8 ft. 10 in. and the next 2 ft. 2 in., etc., without the slightest change of position by the operator. He is at his saw at all times and after glancing over the board can tell

exactly how many pieces and what lengths he can get from each and every board, the stops being firmly set. Let us send you a gauge on thirty days' trial, fill out the blank below and mail to us.



Give Information Below With Order

### SOMETHING YOU NEED

Our longest cut is...inches

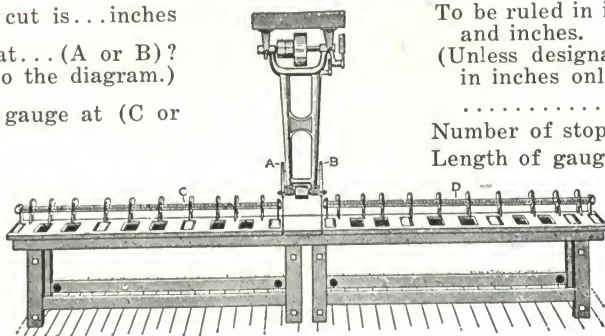
Our saw is at... (A or B)?  
(Referring to the diagram.)

We wish to gauge at (C or D)?

To be ruled in inches or feet and inches.  
(Unless designated, we rule in inches only.)

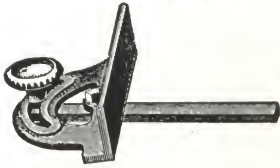
.....  
Number of stops.....

.....  
Length of gauge.....



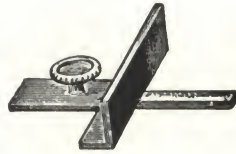
If Gauge is to extend through to saw under mandrel, 5-inch clearance is needed between mandrel and saw table, otherwise give distance from saw to opposite end of mandrel, where the gauge must start. Price, \$1.50 per foot and \$1.50 per stop.

## Rip and Cross-Cut Saw Gauges



**Bevel Cross Cut Gauge**

Price.....\$7.00



**Plain Cross Cut Gauge**

Price.....\$6.00



**No. 223 Rip Saw Gauge. Price, \$14.00**  
Furnished with 26-inch Dovetail Slide.



**No. 225 Swivel Cross-Cut Gauge. Price, \$16.00**  
Furnished with 4 ft. 6 in. either Dovetail or Straight Slide.



**No. 224 Bevel Ripping Gauge. Price, \$16.00**  
Furnished with 26 in. Dovetail Slide.



**No. 226 Box Rollers and Track**  
Track 4 ft. 5 in. long.

Price per set, 4 Rollers—2 Pieces, Track, 4'15" long.....\$28.00

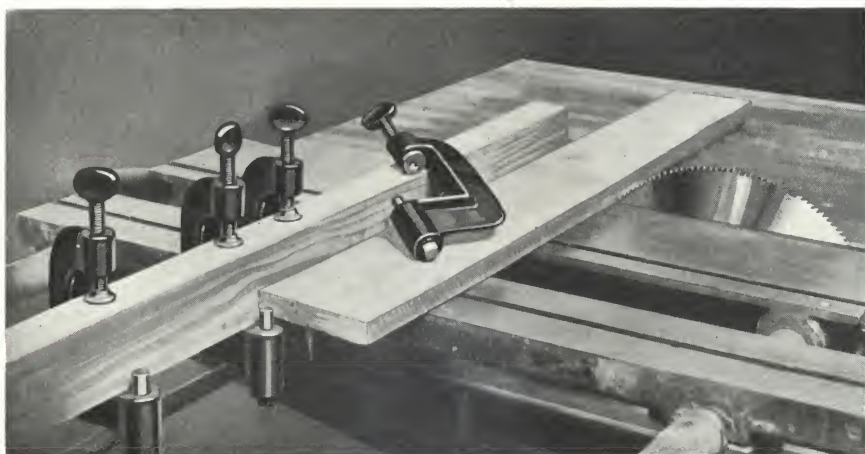
## No. 5 Solid Ripping Gauge

With Angle Iron \$18.00

Without ..... 14.00

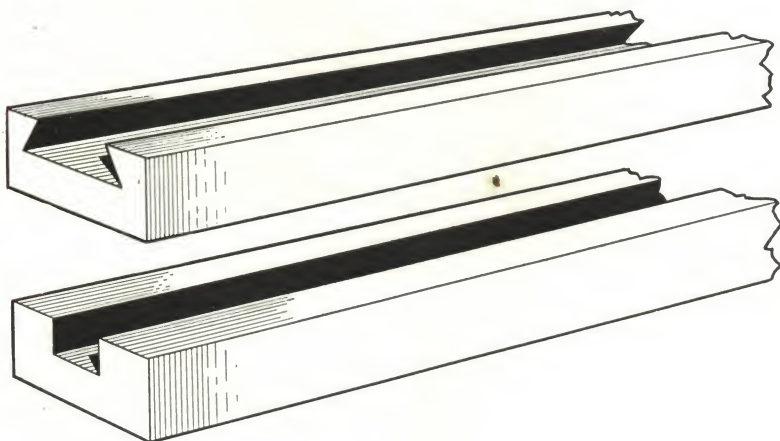


## Champion Trim Saw Stops



These stops are made of iron and can be fastened on wooden gauge of trim saws and other machines. Price, each.....\$5.00

## Square and Dovetail Slides



We make all sizes of dovetailed slides. When writing for prices please specify width, thickness, length and dimensions of inside of slide.

Will send standard inside dimensions, unless otherwise ordered.

Standard size, \$3.00 per foot.

Special size, \$4.00 per foot, planed to order.

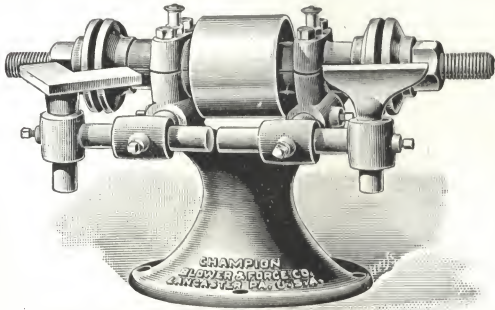


**NO. 0 CHAMPION BENCH GRINDER****With Ring Oil Bearings**

No. 0 Champion Bench Grinder holds two wheels 12 inches in diameter and 2 inch face or smaller.

Bearings are ring oiling giving perfect lubrication and babbitted with genuine Babbitt; are well supplied with oil cups and two rests which can be set to any angle.

This Grinder is fitted for either Column or Bench use and is in every respect a well finished and highly machined Grinder Head.



With Tigh Pulley or Tight and Loose Pulleys

No. 0 Champion Bench Grinder. Capacity 12 Inches x 2 Inches. Wheel with 1-Inch Hole, Arbor to Bench 8 Inches, Size of Base 9 Inches x 6 Inches, Length of Arbor, 13 Inches, Diameter of Arbor, 1 1/4 Inches, Size of Pulleys, 4 Inches x 3 Inches. Weight, 50 lbs. ....\$15.00  
Extra for Tight and Loose Pulleys 2.50

No. 0 Countershaft for above Drive Pulley, 10 Inches in Diameter, 3 1/2 Inch Face, Tight and Loose Pulleys, 5 Inches in Diameter, 3 1/2 Inch Face, Length of Shaft, 24 Inches, Diameter, 1 Inch. Weight, 70 lbs. ....\$12.00

No. 0 Column for above, Top Plate, 11 Inches x 13 Inches, Base 12 Inches x 16 Inches, Height 28 Inches, Diameter 5 Inches. Weight, 80 lbs. ....\$12.00

**NO. 3 CHAMPION BENCH GRINDER****With Ring Oil Bearings  
Made with Single Pulley**

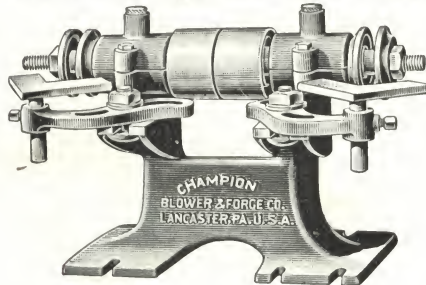
No. 3 and No. 3A Champion Bench Grinders hold two wheels 10 inches x 1 1/2 inches in diameter or smaller. The bearings are equipped with ring oilers.

The oil reservoirs when filled hold sufficient oil which lubricates the bearings automatically for three months. They are adjustable, avoiding the necessity of destroying the machine, when the bearings show signs of wear.

The No. 3 and No. 3A Champion Bench Grinders are the most economical and highest grade, low-priced Grinders on the market.

No. 3 Grinder furnished with Single Tight pulley.

No. 3A Grinder furnished with Tight and Loose pulley.

**NO. 3A CHAMPION BENCH GRINDER****With Ring Oil Bearings  
Made with Tight and Loose Pulleys**

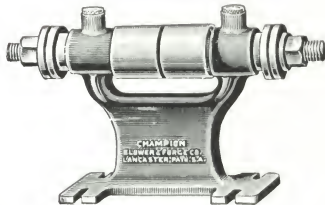
No. 3 machine—1" arbor—length, 15"; hole in wheels, 3/4". Price. ....\$ 8.00  
No. 3A machine—1" arbor—length, 15"; hole in wheels, 3/4". Price. .... 10.50  
Countershaft ..... 11.00  
Iron Column ..... 9.75  
Guards ..... 4.50

**NO. 4A CHAMPION BENCH GRINDER****Made with Tight and Loose Pulleys**

No. 4 and No. 4A Champion Bench Grinders are adapted for jewelry and dental use, and shoe manufacturing, and all work where light grinding is done.

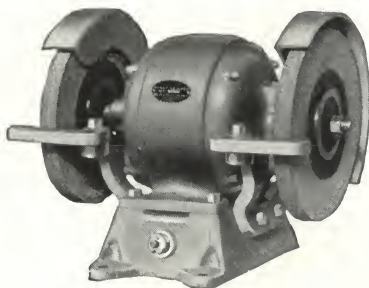
These Grinders will hold two wheels 6 inches in diameter with 1-inch face. They are supplied with Ring Oil Bearings. The oil-chambers surrounding these bearings when filled hold oil which lubricates the bearings automatically for months.

No. 4 tight pulley .....\$3.60  
No. 4A tight and loose pulleys ..... 4.00  
Countershaft ..... 8.25  
Iron Column ..... 8.50



## Portable Electric Bench Grinder

$\frac{1}{3}$  H. P.  
MOTOR  
A. C. or D. C.  
 $\frac{3}{4}$ "x8"  
WHEELS



A husky bench  
Grinder for the  
Contractor and Car-  
penter.

Sharp Tools save the  
workman's time.

### SPECIFICATIONS

**Motor**— $\frac{1}{3}$  H. P. 1800 R. P. M. Furnished either 110 volt A. C. or D. C. Specify current in ordering. Has 10 feet of cord and plug for lamp socket.

**Wheels**—Two  $\frac{3}{4}$ "x8" High Grade Grinding Wheels furnished with each grinder. Wheels are protected by Safety Guards.

**Construction**—Built to stand hard usage. The bearings are of Phosphor Bronze and made dust proof. The spindle is threaded on the end for No. 2-B Jacobs Drill Chuck. Two adjustable Tool Rests are furnished with each Grinder.

**Size**—11 inches high, 13 inches wide. Weight 55 lbs. Price.....\$38.00

## 10" Electric Bench Grinder

Furnished for 110  
or 220 volts



**\$118<sup>00</sup>**

A powerful ball-bearing Bench Grinder designed for use on either bench or pedestal to take care of tool grinding and all types of general grinding and buffing. Equipped with enclosed type safety wheel guards with an adjustable tongue to follow up the wheel wear. The electric switch is conveniently located in the base.

Two grinding wheels, 10 inches in diameter by 1-inch face by  $\frac{3}{4}$ -inch hole, one coarse and one fine, are supplied as standard equipment.

No load speed for D. C.....	2000 R. P. M.
No load speed for 25 cycle A. C.....	1500 R. P. M.
No load speed for 40 cycle A. C.....	2400 R. P. M.
No load speed for 50 cycle A. C.....	1500 R. P. M.
No load speed for 60 cycle A. C.....	1800 R. P. M.
Net Weight .....	120 lbs.
Price, all voltages .....	<b>\$118.00</b>
Pedestal for this Grinder, extra.....	<b>24.00</b>

## Heavy Duty Electric Grinders

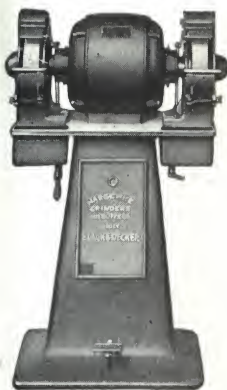
### 10-Inch Wheels---1 HP

This is an exceptionally husky 10-inch grinder, provided with adjustable and universal guards, snap switch and water pot. The prices do not include grinding wheels. Can be supplied in bench type or as complete pedestal grinder. 1 HP totally enclosed.

This is a ball-bearing machine with wheel guards and hinged enclosing covers.

Tool rests mounted on wheel guards are adjustable to the wear of the wheel by means of hand screws and lock. This has a sliding arrangement at an angle which insures the front top of wheel guard maintaining the same distance from wheel as the tool rest, thereby providing automatic spark protection. These guards are of the Universal type with exhaust outlets and the opening can be brought to any position and is locked by means of a lever (no tools required). This enables the operator to grind at any position on wheel circumference.

### EXHAUST TYPE UNIVERSAL GUARDS



PEDESTAL  
TYPE

H.P.	Wheels Diameter Face	Speed R. P. M.	Dia. Spdl.	Length Spdl.	Size Base	Hgt.	Net Wt. Lbs.	Current	Price
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#### BENCH TYPE

1	10"x1 1/4"	1,800 30 and 60 C. 1,500 25 C.	7/8"	24"	11"x12"	9 1/2"	225	220, 440V. 2 and 3 Ph. 550V. 3 Ph. 60 C. 25 and 30 C.	\$140.00 165.00
1	10"x1 1/4"	1,800 30 and 60 C. 1,500 25 C.	7/8"	29 1/2"	11"x12"	9 1/2"	250	110, 220V. Single Phase 60 C. 25 and 30 C.	140.00 165.00
1	10"x1 1/4"	1,800	7/8"	28 1/2"	11"x12"	9 1/2"	250	110 or 220V. D. C.	155.00

#### PEDESTAL TYPE

1	10"x1 1/4"	1,800 30 and 60 C. 1,500 25 C.	7/8"	24"	18"x20"	39"	375	220, 440V. 2 and 3 Ph. 550V. 3 Ph. 60 C. 25 and 30 C.	175.00 200.00
1	10"x1 1/4"	1,800 30 and 60 C. 1,500 25 C.	7/8"	29 1/2"	18"x20"	39"	400	110, 220V. Single Phase 60 C. 25 and 30 C.	175.00 200.00
1	10"x1 1/4"	1,800	7/8"	28 1/2"	18"x20"	39"	400	110 and 220V. D. C.	190.00

Ball Bearing Exhaust Blower.....Extra \$50.00

## Heavy Duty Electric Grinders

### 12 and 14-Inch Wheels---3 HP

(Prices do not include grinding wheels)

H.P.	Wheel Diameter Face	Speed R. P. M.	Diameter Spdle.	Lgth. Spdle.	Size Base	Hgth.	Net Wt. Lbs.	Current	Price
3	12"x2"	1,800 60 C. 1,800 30 C. 1,500 25 C.	1 1/4"	29 3/4"	23"x25"	39"	725	220 and 440V. 2 and 3 Ph. 550 V. 3 Ph. 60 C. 25 or 30 C.	\$295.00 345.00
3	12"x2"	1,800	1 1/4"	34"	23"x25"	39"	800	110 or 220 V. D. C.	395.00
3	14"x3"	1,800 60 C. 1,800 30 C. 1,500 25 C.	1 1/4"	31 1/2"	23"x25"	34"	725	220 and 440V. 2 and 3 Ph. 550V. 3 Ph. 60 C. 25 or 30 C.	\$325.00 375.00
3	14"x3"	1,800	1 1/4"	36"	23"x25"	34"	800	110 or 220 V. D. C.	425.00

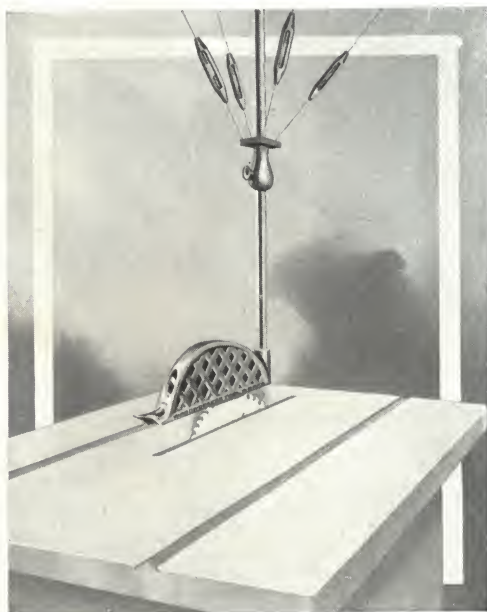


## Champion No. 20 Saw Guard

This guard can be attached above any circular saw machine. There is not a particle of it attached to the table, so it matters not whether you tilt the table, whether the machine is large, small or has any other peculiarities that made it impossible for you to attach a saw guard before. It hangs from the ceiling, and the hood can be raised from the table by fractional parts of an inch, therefore making it adaptable for any size of lumber you may have to cut. The hood protects the saw all around and is made of aluminum. It is an absolute safeguard against accidents and in no way interferes with the operator or his work. The guard is furnished complete as shown in cut, with the exception of pipe extending up to the ceiling.

### No. 20—

Saw Guards, 8-in. hoods	\$15.00
Saw Guards, 12-in. hoods	17.00
Saw Guards, 16-in. hoods	20.00
Saw Guards, 20-in. hoods	23.00
Saw Guards, 24-in. hoods	25.00

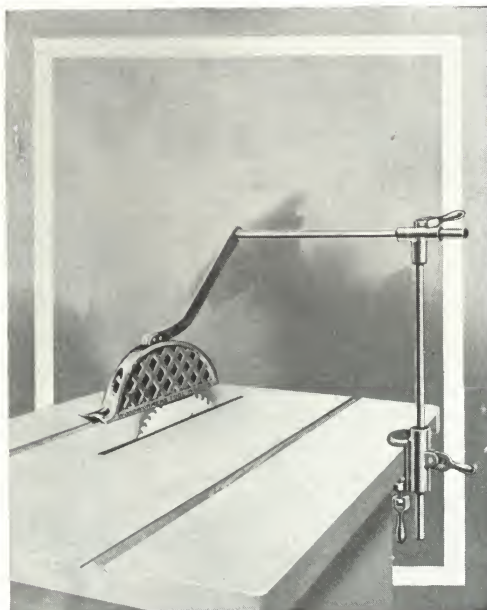


## Champion No. 30 Table Guard

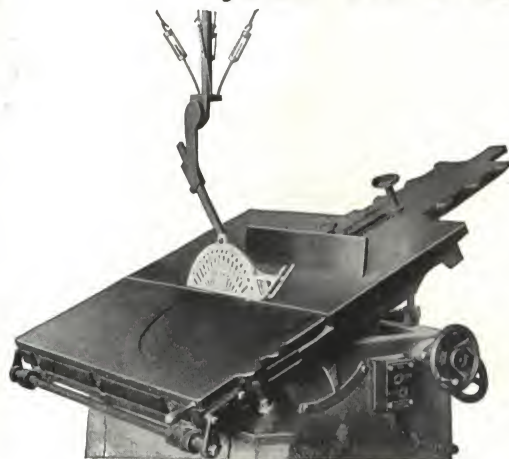
As shown in illustration, this guard is made to attach to the right hand side of the saw table, and can be used for rip or cut-off saw, is easily and quickly attached to the machine.

### No. 30—

Saw Guards, 8-in. hoods	\$18.00
Saw Guards, 12-in. hoods	22.00
Saw Guards, 16-in. hoods	25.00
Saw Guards, 20-in. hoods	27.00
Saw Guards, 24-in. hoods	36.00



## Jones No. 2 Saw Guard



Specify diameter of saw and style of hood. The pipe, which is common one (1) inch pipe, is not included in the price of this guard. This guard has roller bearings at R-R, giving automatic adjustment for different thicknesses of material.

This guard can be attached above any circular saw machine. There is not a particle of it attached to the table, so it matters not whether you tilt the table, whether the machine is large, small, or has any other peculiarities that made it impossible for you to attach a saw guard before. It hangs from the ceiling, and the hood can be raised from the table by fractional parts of an inch, therefore making it adaptable for any size of lumber you may have to cut. The hood protects the saw all around and is made of aluminum. It is an absolute safeguard against accidents and in no way interferes with the operator or his work. The guard is furnished complete as shown in cut, with the exception of the pipe extending up to the ceiling.

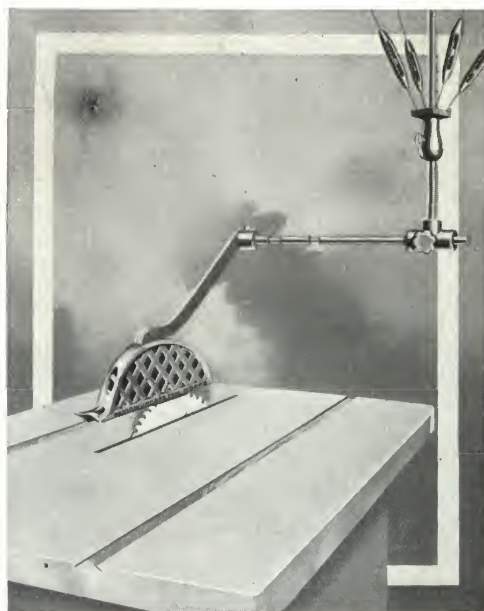
No. 2 Saw Guards, 8-inch hoods.....	\$16.50
No. 2 Saw Guards, 12-inch hoods.....	19.00
No. 2 Saw Guards, 16-inch hoods.....	22.00
No. 2 Saw Guards, 20-inch hoods.....	26.00
No. 2 Saw Guards, 24-inch hoods.....	30.00

## Champion No. 10 Saw Guard

The simplicity as well as the practicability of this saw guard will appeal to every mill superintendent. It is self adjustable and being attached to the ceiling, leaves the top of the table clear for wide work. The hood is always over the saw in doing bevel work, regardless of how much one tips the table. It is adjustable up, down, right or left. Easily turned back or pushed to one side for up-end work, or when changing saws. No tools needed.

The guard is shipped complete with the exception of rods from the ceiling, which are common one-inch pipe.

Always give diameter of saw to be covered. The following sized hoods in both open and closed fronts carried in stock: 8-inch, 12-inch, 16-inch, 20-inch and 24-inch. Larger sizes made to order. All hoods are of aluminum.



No. 10

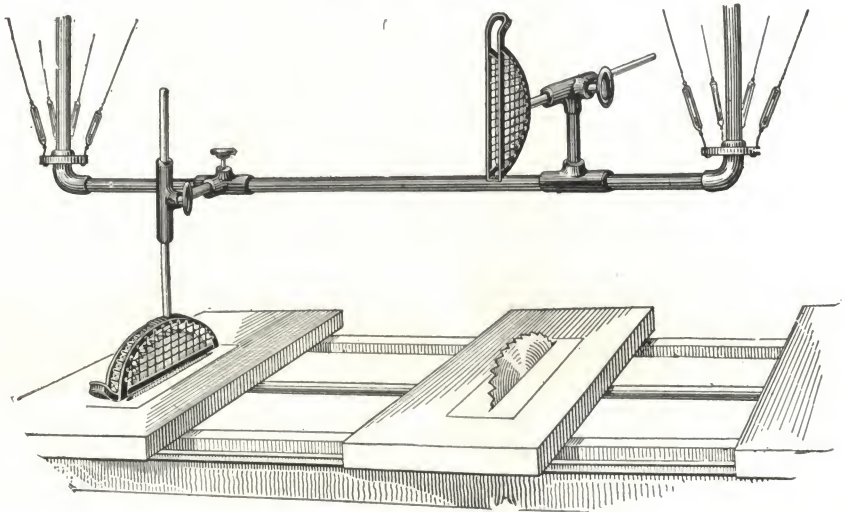
Saw Guards, 12-in. hoods, \$22.00

Saw Guards, 16-in. hoods, 25.00

Saw Guards, 20-in. hoods, 27.00



## No. 6 Guard



This Guard has been devised for use on double cut-off machine and machines of like character.

It combines the same advantageous features as our other circular saw guards, distinguishing it from and making it superior to all other guards.

The design and construction insure absolute stability, maximum protection and efficiency and convenient and rapid operation.

It requires no wrench or tools of any kind.

The hoods can be moved to any desired position between the perpendicular rods and can also be thrown up and back for changing saws, etc., by simply releasing the hand wheels attached to the extension bracket. They can also be adjusted vertically with the same facility and ease.

The Guard is regularly made with a vertical adjustment of 20 inches and under; this adjustment can be increased, however, if a greater range is desired for special work.

Equipped with either 12-inch, 14-inch, 16-inch, 18-inch or 20-inch "Wire Hoods" and furnished complete in all details, including the long rods from the ceiling.

When ordering always state the number of hoods wanted and diameter of largest saws used, extreme distance between saws and distance from table to ceiling.

2 Hoods, 10"—12"—14" or 16" .....	\$28.80
2 Hoods, 18" or 20" .....	30.00

## The French Automatic Saw Guard



is a marvel of simplicity and durability. Being made from the finest steel, it is light and strong. The guard lifts as the board presses against it and during the operation rests lightly upon the board. After board passes through, the guard automatically falls in place. Prevents sawdust from flying into operator's eyes. Prevents flying splinters.

"Kicking back" is made impossible. It meets the requirements of state inspectors and insurance companies.

The Guard will be sent, with instructions for installing, on six days' trial. Return at our expense, if it does not meet your requirements.

No. 2 Guard— 6 to 10 inch Saws .....	\$18.00
No. 4 Guard— 8 to 14 inch Saws .....	20.00
No. 6 Guard—10 to 18 inch Saws .....	22.00



## Jones No. 1 Saw Guard



It is the simplest as well as the most efficient saw guard on the market. It is absolutely self-adjustable, due to case-hardened steel rollers placed in the sleeve carrying the hood, allowing it to automatically raise and lower with the lumber being run. Being attached to the ceiling, it leaves the entire top of the table clear for wide work.

It is always over the saw for bevel work. In fact, it makes no difference how one tilts the table, the hood is over the saw, in position, always doing its duty.

It is adjustable, up or down, and right or left. It is easily turned back and pushed to one side for up-end work, or when necessary to change saws. No tools are needed.

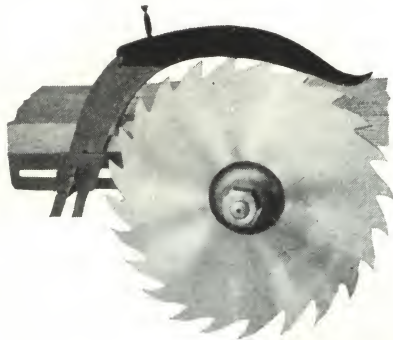
The guard is made of SQUARE steel to insure stability. The guard is shipped complete with the exception of the rods from the ceiling, which are common 1-inch pipe.

Always give the diameter of the saw to be covered. We keep in stock the following sizes of hoods in both open and closed fronts: 8-inch, 12-inch, 16-inch, 20-inch and 24-inch. Larger sizes made to order. All hoods are aluminum.

No. 1 Saw Guards— 8-inch hoods.....	\$20.00
No. 1 Saw Guards—12-inch hoods.....	24.00
No. 1 Saw Guards—16-inch hoods.....	27.50
No. 1 Saw Guards—20-inch hoods.....	30.00
No. 1 Saw Guards—24-inch hoods.....	35.00

## The Champion Saw Guard No. 90

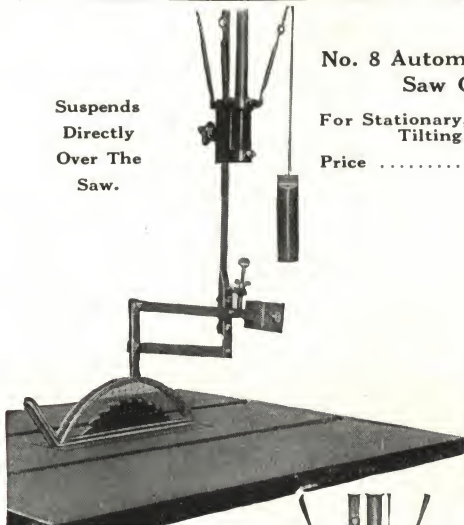
The one practical guard and saw  
spreader for wood top saw tables.



No. 90. For saws up to 14 inches. . \$4.50

No. 90. For saws up to 18 inches. . 5.50

Suspends  
Directly  
Over The  
Saw.

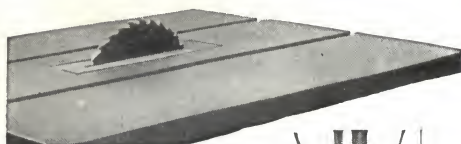


### No. 8 Automatic Circular Saw Guard

For Stationary, Roll Top, and Tilting Tables.

Price .....\$22.00

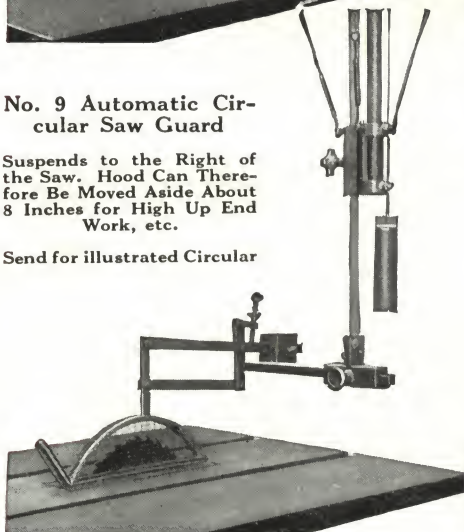
For Saws  
18 inch and  
Under.



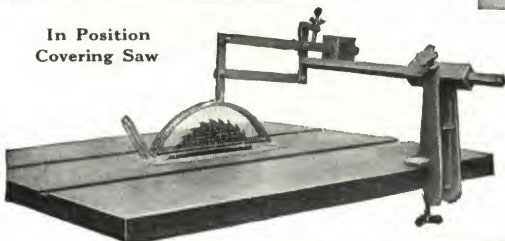
### No. 9 Automatic Circular Saw Guard

Suspends to the Right of the Saw. Hood Can Therefore Be Moved Aside About 8 Inches for High Up End Work, etc.

Send for illustrated Circular



In Position  
Covering Saw

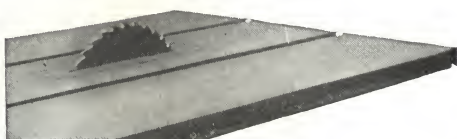


Hood Raises Automatically When Stock is Fed Into Saw After Which it Automatically Drops Back Again on the Table Over the Saw.  
FOR SAWS 18 INCHES AND UNDER.  
MAXIMUM REACH 26 INCHES.

PRICE.....\$20.00

For Stationary, Roll Top and Tilting Tables. For Saws 18 inches and Under.

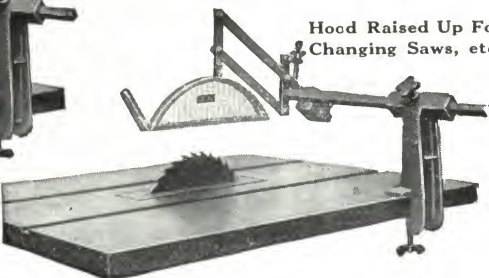
Price.....\$24.00



### No. 7 Automatic Circular Saw Guard

For Stationary Saw Tables

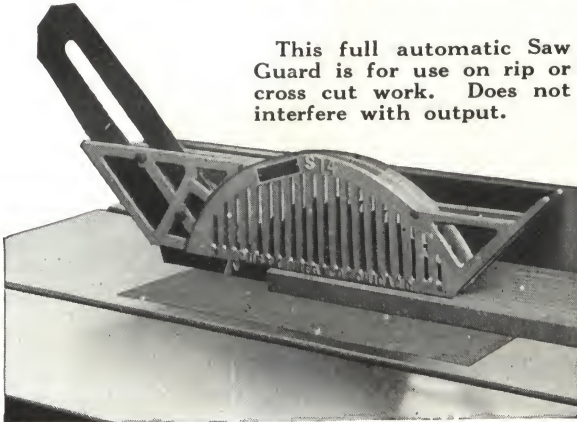
Hood Raised Up For  
Changing Saws, etc.





## Surty Automatic Saw Guard

Point-of-Operation Guards complying with all requirements of State and Insurance Inspection



This full automatic Saw Guard is for use on rip or cross cut work. Does not interfere with output.

When ordering, give data below:  
A—Diameter of largest saw used.

B—Greatest projection of saw above table.

C—Distance from center of saw to first obstruction on under side of table.

D—Is throat piece wood or iron?  
E—Thickness, length and width of throat piece.

F—Thickness of table including throat support.

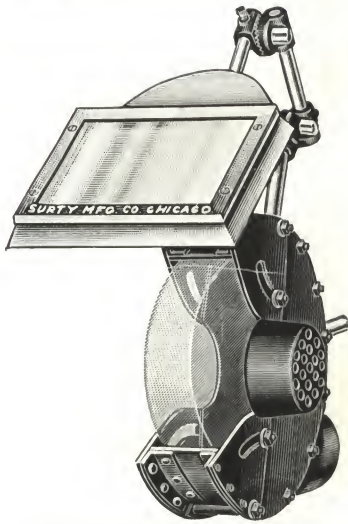
G—Saw to edge of throat, left side.

### FOR SAWS

S-6"	\$22.00
S-8"	24.00
S-10"	26.00
S-12"	28.00
S-14"	31.00
S-16"	35.00
S-18"	40.00
S-20"	49.00
S-22"	53.00
S-24"	59.00

## Grinding Guards

Send for special leaflet on guards for single or double arbor tilting table or for dado work; swing saws, front or rear fence Inverted swing. We have a guard for any kind of circular saw.



No. 1 Grinding Wheel Hood has upper and lower lips adjustable and easily closed as wheel wears, meets ALL REQUIREMENTS of any state or insurance company.

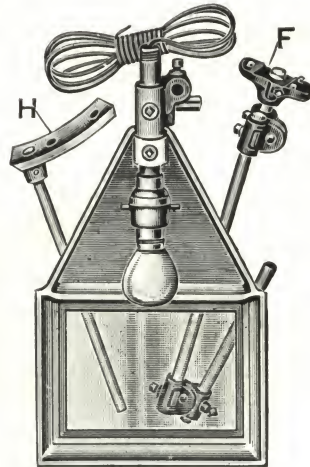
No. 3 Grinding Wheel Hood not shown is acceptable in states not having a safety code.

When ordering, give:

(A) Thickness and diameter of wheel. (B) Diameter and thickness of collar used with largest wheel. (C) Diameter and length of arbor projection (D) designate for right or left hand when facing machine. When ordering a supporting stand give (1) distance between wheels, (2) distance from the floor or bench to center of shaft.

For Wheels	6"	8"	10"	12"
No. 1.....	\$18.00	\$20.00	\$22.00	\$24.00
No. 3.....	8.00	10.00	12.00	12.50

Supporting Stands One Hood—Two Hoods.



The Machine Goggle is always on the job, does not cause eye strain, fully protects, Series H for attaching to Hood Guard. Series F for attaching to Frame of machine. Series L is with electric light. Theft-proof lamps are supplied free. Illuminates under surface of glass—makes dark corners 100% for production. There are two sheets of glass in each shield.

Size 1 is for 6" and smaller wheels. Size 2 for arger.

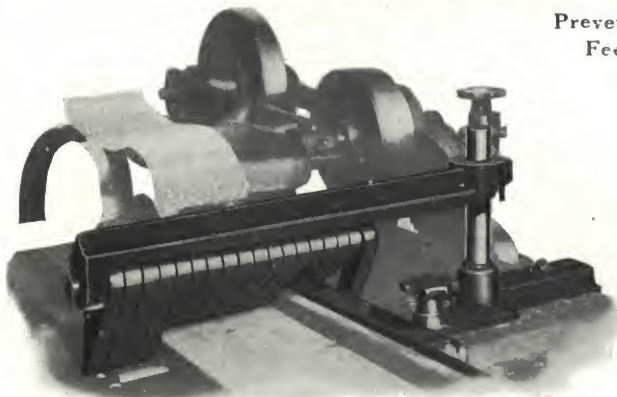
No. 1H or No. 1F.....	\$10.00
No. 2H or No. 2F.....	\$12.00

When electric lighted is worth double extra cost.

No. 1HL or No. 1FL.....	\$12.50
No. 2HL or No. 2FL.....	15.00



## Self-Feed Rip Saw Guard



**Prevents Fly-Backs on the Self-Feed Rip Saw. Relieves a Dangerous Situation.**

Serious, if not fatal, injuries to operators often occur on power feed machines when stock flies back. It is an every day occurrence. The stock comes loose and the feed rolls fail to hold. The operator is all too often in the way of the flying piece.

Prevent this by using this new safety guard. It will make your machine absolutely safe against fly-backs and makes operators do better work because relieved of fear of accident. Can be applied to self-feed rip saws, molders, planers and power feed facing jointers. Price \$25.00.

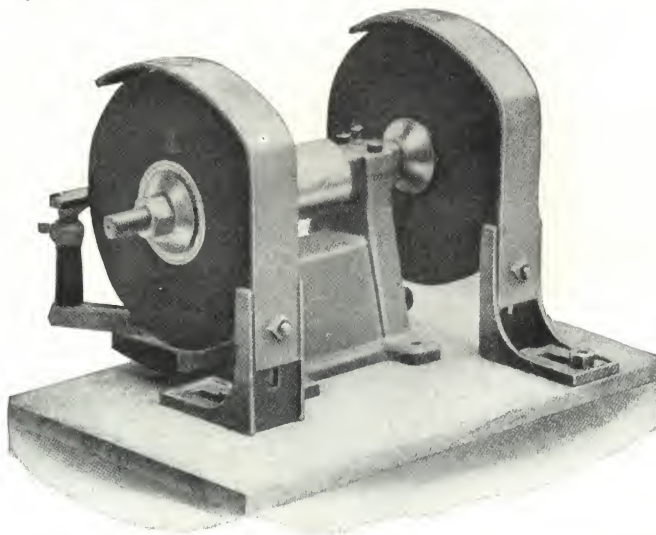
## Grinding Machine Guards

These guards provide perfect safety without interference in any way with operator or the work.

Do not go longer without satisfactory protection.

Hood made of steel. Bracket holding hood made of CAST STEEL, guaranteed not to break. Adjustable as wheels wear.

We carry all sizes in stock for immediate shipment.



When ordering, give diameter of wheels used and distance from base to center of spindle.

Price, per pair.....\$12.00

## Champion Automatic Flexible Safety Guard

### It Is Not An Experiment

To prove this, we will give you 30 days to try it in your own shop.

The Champion Automatic Safety Guard requires no adjustment for various widths of boards, as it adjusts itself automatically.

With this guard, the knives of the jointer are covered at all times.

We furnish small attachment to hold guard open, if desired, when same width of lumber is to be surfaced continually.

The Guard can be put out of operation without removing from planer, by slipping it under the roller, on which flexible portion slides, or can be removed entirely by simply pulling out a pin.

The Guard can be easily attached to jointer in a few minutes' time.

No loss of output is caused by the use of this Guard. Nor does it interfere with the movement of the operator.

Less skilled labor is required. A boy can run your jointer with this device on it, in safety.

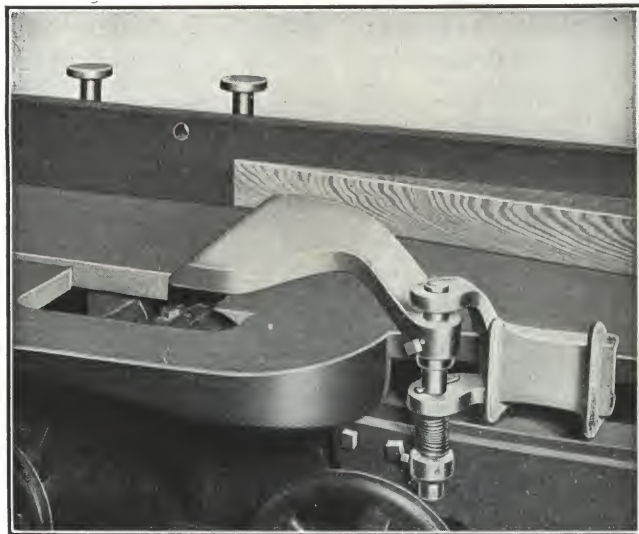
Shows board with Guard automatically adjusted to full width of board.



Up to 18-inch table.....	\$30.00
Up to 24-inch table.....	35.00

## Aluminum Jointer Guard

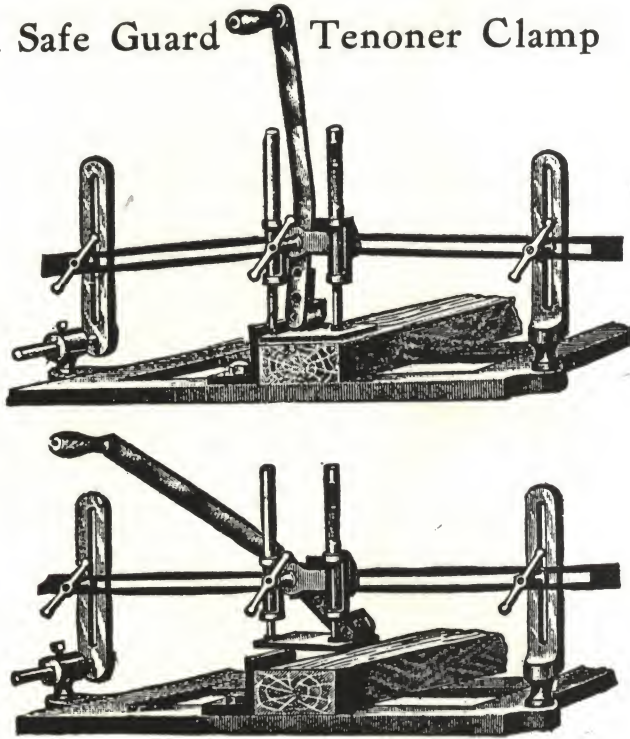
Is the Acme of Perfection and Simplicity



The shield opens only far enough to admit work of varying dimensions and automatically closes behind it. The work may be drawn back across the Guard by the operator, ready to go over the knives again. Very thin work can be passed under the shield, which may be raised or lowered slightly. This eliminates danger to the operator by the knives breaking the thin strip or piece of wood. The Guard needs no adjusting for different kinds or sizes of work, as it adjusts itself automatically to all dimensions. The shield is made of aluminum, light in weight, but as strong as steel. Although simple in construction, it is the best and cheapest Guard on the market.

8-inch .....	\$10.00	16-inch .....	\$14.00
12-inch .....	12.00	18-inch .....	16.00

## A Safe Guard Tenoner Clamp



### Automatic Pressure Attachment for Tenoner

This attachment will thoroughly secure your work to carriage and is quickly adjustable for very short pieces. Also, it will hold your heavy lumber firmly. It is a time saver when setting up machine, by clamping down pattern and arranging knives, thereby being assured that pattern will not move, as is the case with the old style clamp.

Above all, this is a safeguard. The operator cannot be hurt by the use of it.

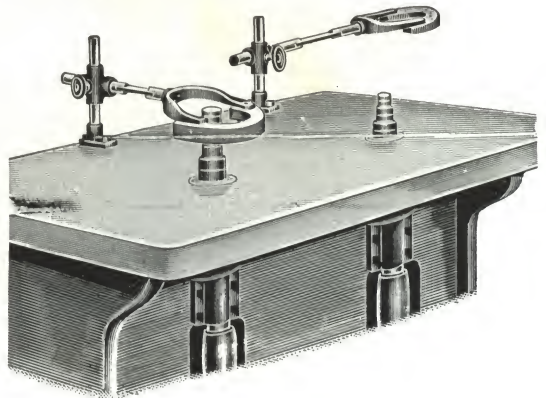
Price, \$25.00

## Jones No. 21 Shaper Guard

Is made for double or single spindle machines. It is superior to any guard of equal price. It is easily adjusted, as shown, and has a clearance of six inches between the post and spindle.

No. 21 Shaper Guards.

Each .....\$8.50





## The "Simplex" Shaper Guard and Hold-Down Adjustable in Every Way

This Guard is the most practical and serviceable device of its kind made and can be used on either single or double spindle machines.

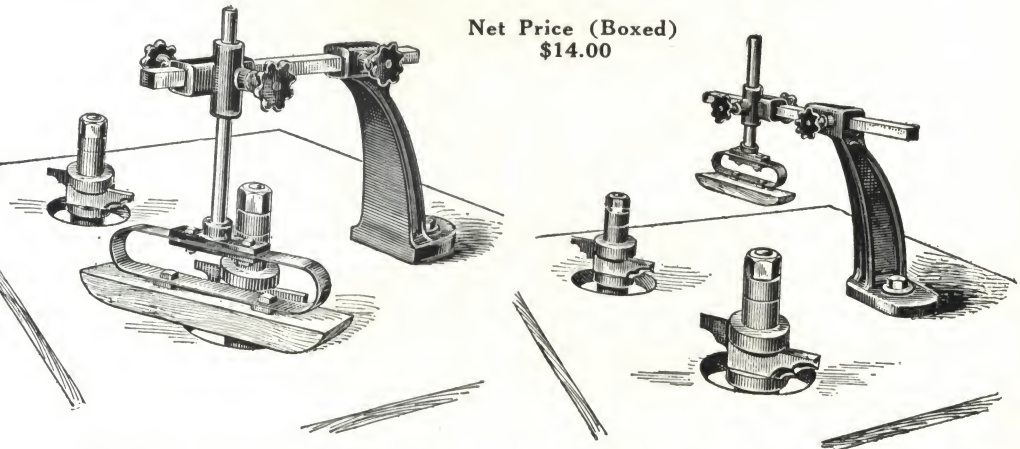
It is of strong and rigid construction, practically non-wearable, gives perfect security without hindrance to work and takes up automatically any unevenness in the thickness of stock.

A very important feature is the ease and facility of changing from one position to another. No wrench or tools are required for this purpose, nor is it necessary for the operator to lose time by going to the back of the machine to make adjustments, as with other guards.

The horizontal (27 in. maximum) and vertical adjustments are perfect and can be made in a few seconds' time; simply release the corresponding hand wheel and adjust the guard to the desired position.

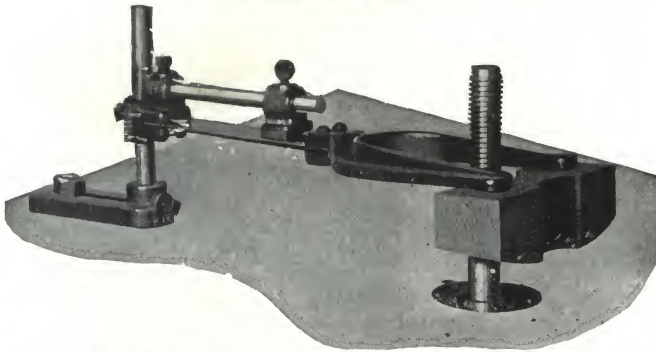
In even less time and with equal ease the guard can be moved to either spindle or swung entirely out of the way without the need of raising the protector shoe above the knives or spindles, an economical feature and decided advantage not found in other guards.

Net Price (Boxed)  
\$14.00



To attach guard, drill one 17/32-inch hole in table and tap same for a 5/8-inch cap screw, which is furnished with the guard.

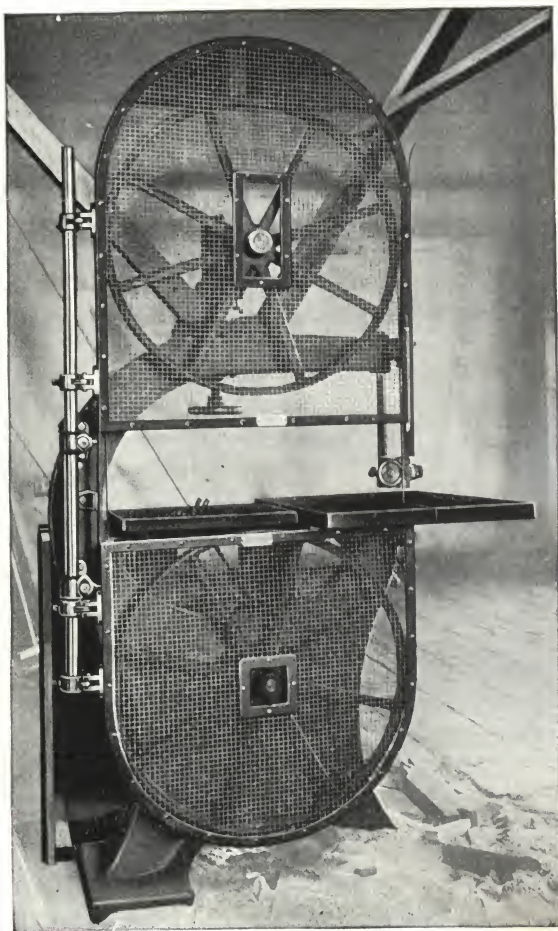
## Champion Shaper Guard PRACTICAL—SAFE



This guard has an adjustable spring tension for holding stock to table. Heavy and light pressure may be applied by moving slide. Here is a real shaper guard that operators will like and use; you can depend upon it for safety and practicability.

Price each.....\$15.00

## Jones Band Saw Guard



This is the most efficient protector for band saws on the market, because it completely covers ALL POINTS OF DANGER, including the part of the saw between the upper and lower wheels.

The frame is made of angle iron, over which is attached a strong half-inch wire mesh. This is bolted into place. These frames are attached to the machine itself by means of adjustable joints. The guards close in the danger side of each wheel, and being of wire, allow the operator to clearly see the saw at work.

THEY DO NOT ENTIRELY ENCLOSE THE SAW WHEEL, because in case the saw breaks, if the wheels were closed in on all sides, the saw would be broken into a thousand pieces. Our guards close in the one side of the wheel, and should the saw break, the guard prevents it from flying, and at the same time prevents it from breaking into pieces, by giving it room to drop out easily on the opposite side from the operator.

Attached to the frame of the top wheel is a sliding piece of steel, which drops, down over the saw guides thus leaving no part of the

saw exposed, save that part the thickness of the lumber being run. This is exclusively a Jones' feature. Standard sizes carried in stock. Special sizes made to order.

When ordering, give diameter of the wheel, and state whether upper or lower guards are desired.

**No. 19—Covering Front of Wheels only**

	Single Wheel	Both Wheels
Up to 32"	\$18.00	\$28.00
34" to 38"	20.00	30.00
40" to 44"	25.00	35.00

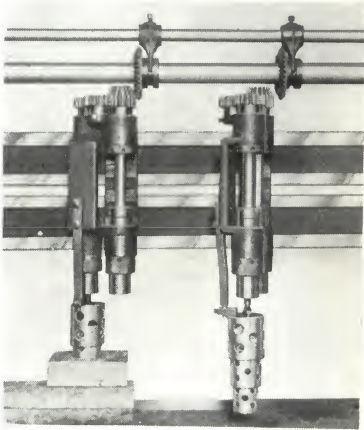
**No. 29—Completely Covering Upper Wheel, Also Front and Face of Lower Wheel**

	Upper Wheel	Both Wheels
Up to 32"	\$32.00	\$45.00
34" to 38"	37.00	50.00
40" to 44"	42.00	55.00



## "Champion" Collapsible Boring Guard

### For Machines With Traveling Tables

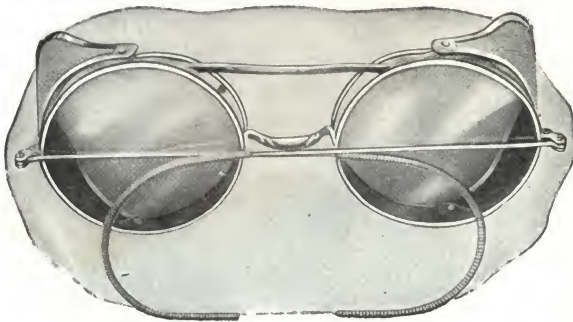


This aluminum guard can be fitted to any boring machine having traveling table. Upward movement of table forces sections together without interfering with bits, and coil spring spreads these out upon retarding movement of table. Attached to machine with suitable brackets which you can easily make. When ordering state largest size bit used, length of twist and depth to be bored.

Champion Collapsible Guard with 3 sections and holder.....\$15.00  
Same with four sections and holder. 20.00

## Industrial Goggle

### Style No. 30261

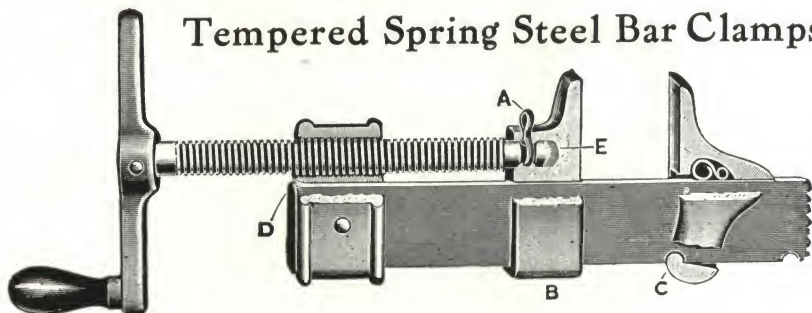


Folding wire side shields, 45.6 m/m lens, reinforcing bar, slightly swelled ribbon bridge, 3 m/m clear plano safety lens, Industrial Velvet temples. Easily sterilized.

No. 30261—Standard protection lenses. Each.....\$2.00  
Annealed lenses. Each ..... 2.25  
Laminated lenses. Each ..... 2.50



## Tempered Spring Steel Bar Clamps



Price, 2½ feet, per dozen.....\$20.00  
 Price, 3 feet, per dozen..... 22.50  
 Price, 4 feet, per dozen..... 25.00

Price, 5 feet, per dozen.....\$28.00  
 Price, 6 feet, per dozen..... 31.00  
 Price, 7 feet, per dozen..... 34.00

### Quantity Prices on Application.

Screw, ⅝-inch diameter, 7 inches long; square thread cut from cold rolled steel; sliding head 1½x2 inches Saddle held in bar notches by indestructible spring. Bars ⅝x1⅝ inch tempered steel.

The extra stiffness of the spring steel used in these bars permits the use of a screw with 8 threads to the inch, giving 25 per cent greater pressure than the usual 6 threads per inch, commonly used.

Our double end malleable cranks are not only quick acting and indestructible, but permit the use of two hands for excessive pressure.

### NOTE THE FOLLOWING FEATURES

- A.—Steel collar that entirely envelopes groove in end of screw, eliminating all possibility of the head becoming detached from the screw.
- B.—Ample sleeve enveloping bar eliminating all bending strains on the screw and holding head rigidly in position.
- C.—An indestructible latch cast into head engaging in a tempered steel notch in bar. Can be used a million times successively in any single position without cutting loose or slipping.
- D.—The screw head driven and headed on to bar before pinning, insuring absolutely permanent alignment under any pressure.

This combination will be recognized as the most consistent possible support for a screw subject to heavy pressure. We have eliminated all useless complications at this point, and guarantee these clamps unconditionally.

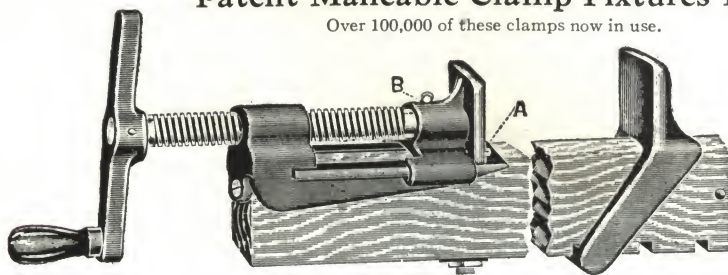
E.—Hardened Steel Plate eliminating wear at end of screw.

### CLAMPS

Our long experience, our facilities and observations at close hand, has enabled us to develop in this line a perfection in design, workmanship and material, that we guarantee without reservation. We will refund in full your money on any clamps returned at any time within one year from purchase showing any weakness or wear. The best evidence we can offer of our success in the manufacture and sale of these clamps is that our output exceeded during the year 1928 over 100,000 Clamps.

## Patent Malleable Clamp Fixtures No. 1

Over 100,000 of these clamps now in use.



Price per doz. sets—Iron Fix. only .....\$10.00  
 Price per doz. mounted 3-foot bar..... 14.50  
 Price per doz. mounted 4-foot bar..... 16.00

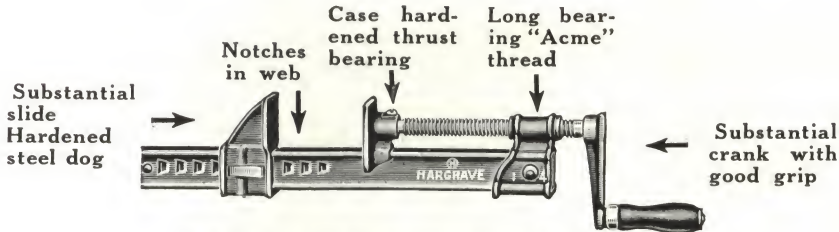
Price per doz. mounted 5-foot bar.....\$17.50  
 Price per doz. mounted 6-foot bar..... 19.00  
 Quantity Prices on Application.

Mounted on clear maple bars; oil finish. Weight of fixtures, per set, 3½ pounds.

The above cut shows our latest cabinet clamp fixtures, designated to attach to wood bars 1¼ inches thick by 2½ inches wide, any length. These fixtures attached to hardwood bars make the strongest, lightest, most easily operated wood frame clamps to be had at any price. The screws are ⅝-inch in diameter, 7 inches long, with deep, square threads cut from rolled cold steel. The sliding head is supported by malleable guides, thus relieving the screw of any bending strain when clamping irregular or thin stuff. They also keep the head from turning when pressure is being applied. The heads are easily hung, and will not get loose or out of line with the frame, or split the wood to which they are attached.

# IMPROVED "I" BAR CLAMP

(Patented)



Metal "T" handle furnished when desired

This is a **powerful Clamp**, having "I" shape high carbon steel bar  $1\frac{1}{2} \times \frac{5}{8} \times \frac{1}{8}$  in.

The screw is steel,  $\frac{5}{8}$  in. in diameter, with deep cut Acme thread and extra long bearing, giving **great power** and **insuring long life** to the Clamp.

Tip has case hardened thrust bearing for end of screw which **practically eliminates wear**.

Crank, frame, tip and slide are of the **best grade of Malleable**.

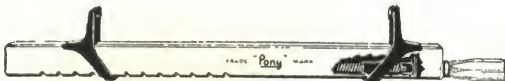
Slide has **tempered steel dog** for engaging the notches.

The notches **do not weaken the bar** as there is no metal removed and they are in the web instead of being cut through the flange at bottom of bar.

This construction makes it possible to place the notches close together. Being spaced only  $\frac{1}{2}$  in. apart, they **permit much more rapid adjustment** than is possible with the ordinary clamp. (Ask for discount from list.)

Opening, feet . . . . .	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
List price, per doz.	\$45.00	\$46.80	\$48.00	\$51.00	\$54.00	\$57.00	\$60.00	\$66.00

## "Champion" Cabinet Clamp



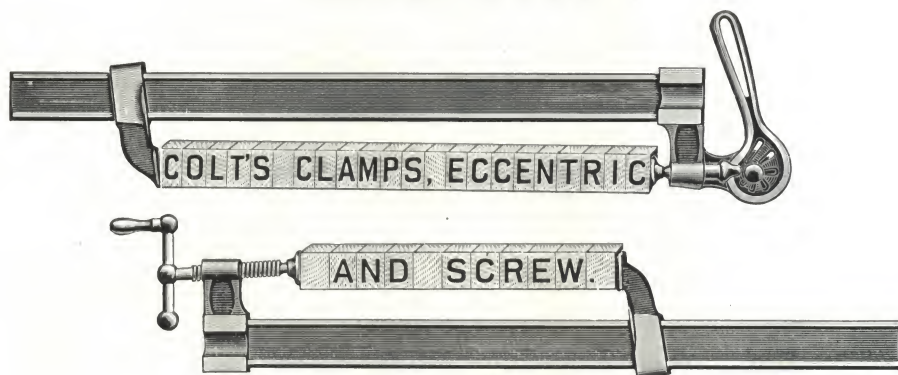
All parts are selected of the best material for their respective purposes, carefully made and assembled. Refined malleable iron jaws, with leather buffers. The tail piece engages the notches in the bar quickly and securely, and is held in place by a heavy flat spring securely riveted to the jaw. The screw is of cold drawn steel with heavy square threads. All parts are mounted on a Hard Maple Bar,  $1\frac{1}{8} \times 2$ ", of perfect grain, oil finished. Parts are interchangeable and can be renewed, if necessary, at trifling cost.

For lightness, combined with strength, this Clamp has no equal.

	Dozen		Dozen
No. 1 open 18 inches . . . . .	\$21.00	No. 4 open 48 inches . . . . .	\$30.00
No. 2 open 28 inches . . . . .	24.00	No. 5 open 60 inches . . . . .	35.00
No. 3 open 38 inches . . . . .	27.00	No. 6 open 72 inches . . . . .	40.00

## Colt's Extra Heavy Clamp

ECCENTRIC OR SCREW



The EXTRA HEAVY Clamp is made of  $1\frac{3}{8}$  in. steel bar with 2 in. reach. One-half heavier than the cabinet style and suitable for heavy work.

Either Eccentric or Screw.

Size	Reach	Per doz.	Approximate net wt., per doz.
12 in.	2 in.	\$39.00	84 lbs.
18 in.	2 in.	45.90	96 lbs.
24 in.	2 in.	52.80	108 lbs.
30 in.	2 in.	59.70	120 lbs.
36 in.	2 in.	66.60	132 lbs.
48 in.	2 in.	80.40	156 lbs.
60 in.	2 in.	94.20	180 lbs.
72 in.	2 in.	108.00	204 lbs.
84 in.	2 in.	121.80	228 lbs.
96 in.	2 in.	135.60	252 lbs.

## Colt's U Bar Clamps

Eccentric or Screw



The U Bar is made of the best open hearth steel plate pressed into U form while cold, which process stiffens the bar. Has a fixed head supporting an eccentric lever, and a movable jaw which has a strong fixed tongue pressing in the bottom of the U bar, making a broad, strong grip.

The 6 inch size has 1 inch U Bar and  $2\frac{1}{8}$  inch reach.

We do not make the all malleable clamp in 10 inch eccentric, 10 inch or 12 inch screw styles, but this clamp is the same kind of a clamp in the U bar style and suitable for the same class of work.

Be sure to specify which you want, eccentric or screw. If not specified we will send eccentric.

EITHER ECCENTRIC OR SCREW

Size	Reach	Per doz.	Approximate net wt. per doz.
6 in.	$2\frac{1}{8}$ in.	\$18.00	21 lbs.
8 in.	3 in.	22.50	32 lbs.
10 in.	3 in.	25.00	33 lbs.
12 in.	3 in.	27.00	36 lbs.



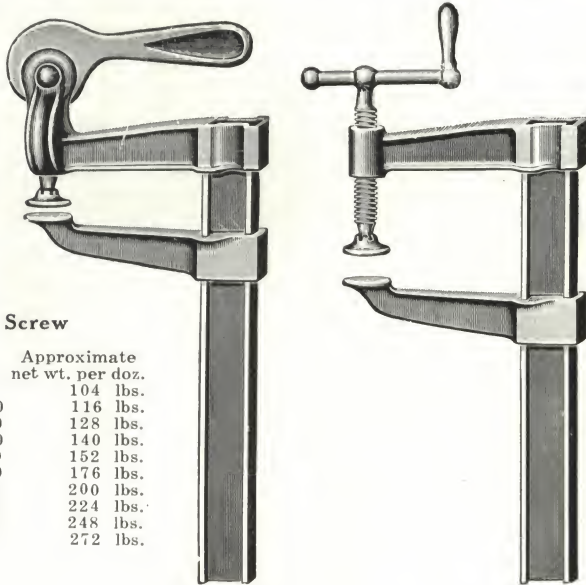
## Colt's Long Reach Clamp

(Formerly listed as Colt's Carpenters' and Builders' Long Reach Clamp.)

The Long Reach Clamp is made of 1½-inch I steel bar and has 6-inch reach.

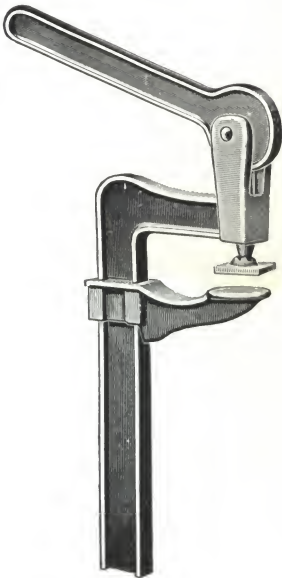
Eccentric or screw, as specified; if not specified, we send the eccentric.

Especially adapted to carpentering and building, concrete construction and in the trades generally where pressure is required 6 inches from the edge of the work.



### Either Eccentric or Screw

Size	Reach	Per doz.	Approximate net wt. per doz.
12 in.	6 in.	\$45.00	104 lbs.
18 in.	6 in.	51.90	116 lbs.
24 in.	6 in.	58.80	128 lbs.
30 in.	6 in.	65.70	140 lbs.
36 in.	6 in.	72.60	152 lbs.
48 in.	6 in.	86.40	176 lbs.
60 in.	6 in.	100.20	200 lbs.
72 in.	6 in.	114.00	224 lbs.
84 in.	6 in.	127.80	248 lbs.
96 in.	6 in.	141.60	272 lbs.



## Colt's Car and Piano Clamp

A powerful malleable iron clamp having a 2½-inch double flanged body with a double flanged eccentric 14-inch lever supported between two ears. The eccentric operates a plunger having ¾-inch movement, and is attached to a self-adjusting button.

This clamp reaches 6 inches.

Adapted to car, piano, automobile work and boat building.

Made only in 12-inch length. Price \$75.00 per dozen.

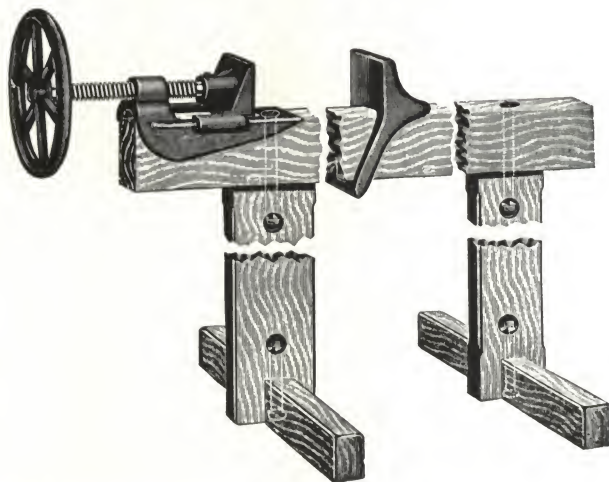
## Perfection Horse Clamps

Price mounted on 6-foot maple bars; weight, 65 lbs.....Each \$12.00

Price for iron fixtures only; weight, 20 lbs.....Per Set 6.50

Quantity Prices on Application.

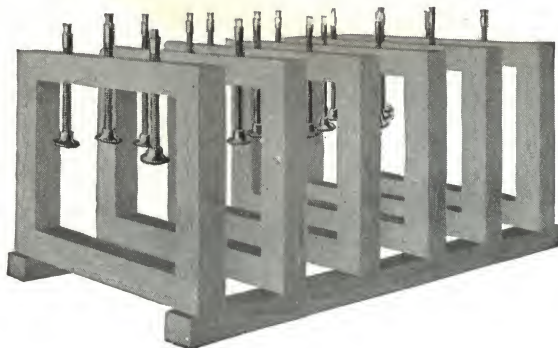
Sliding head  $3\frac{1}{2} \times 4$  inch screw square thread cold rolled steel 10 inches long and 1 inch in diameter, wheel 10 inches in diameter. Our long experience in the manufacture of clamps has enabled us to embody in this horse clamp the very highest degree of efficiency, convenience in action and one which is practically unbreakable. We are offering to our trade in the belief that it is one of the biggest money savers that are being offered to those requiring any kind of clamping appliances. Shipped knocked down and crated.



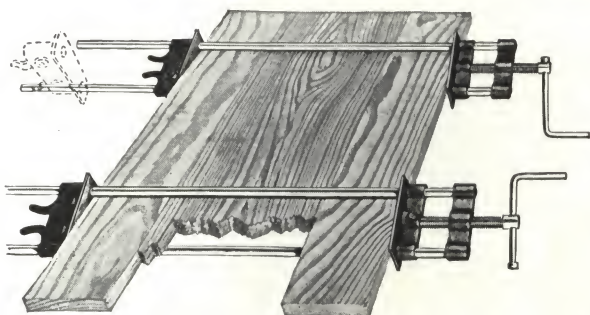
## Veneering Screws for Wood Frame Veneer Press

$1\frac{1}{2}$  inch diameter, 21 inches long. Complete with nut  $1\frac{1}{2}$  inch diameter, 21 inches long. Complete with nut.....\$6.00

Wrenches for Screws,  
Each, Net .....\$1.50



# Hartford Double Bar Clamps



"HARTFORD" No. 3 double bar clamp is the most popular for general work. The side bars of  $\frac{1}{2}$ ", screw  $\frac{1}{8}$ ", and the measurements between the bars  $3\frac{1}{4}$ ". A great time and labor-saving clamp.

The No. 6 clamp is a double bar but is extra heavy. Side bars of  $\frac{5}{8}$ ", screw  $\frac{7}{8}$ ". This clamp is

used for veneering door stiles, chair arms, and in cases where an extra severe pressure is needed. Measuring  $6\frac{1}{2}$ " between bars.

The light No. 6 clamp is a smaller clamp but similar in manufacture. Side bars are  $\frac{1}{2}$ ", screw  $\frac{1}{8}$ " and is adaptable for many classes of work. Measuring 6" between bars.



Our No. 10 clamp has a 10" space between the bars, and  $\frac{1}{2}$ " side bars, screw  $\frac{1}{8}$ " and is light and easy to handle.

## No. 3

2 ft. ....	\$ 52.80
3 ft. ....	57.20
4 ft. ....	61.60
5 ft. ....	66.00
6 ft. ....	70.40

## No. 6 Light

2 ft. ....	\$ 73.32
3 ft. ....	76.26
4 ft. ....	83.60
5 ft. ....	88.72
6 ft. ....	93.68

## No. 6 Heavy

2 ft. ....	\$101.20
3 ft. ....	114.40
4 ft. ....	127.60
5 ft. ....	140.80
6 ft. ....	154.00

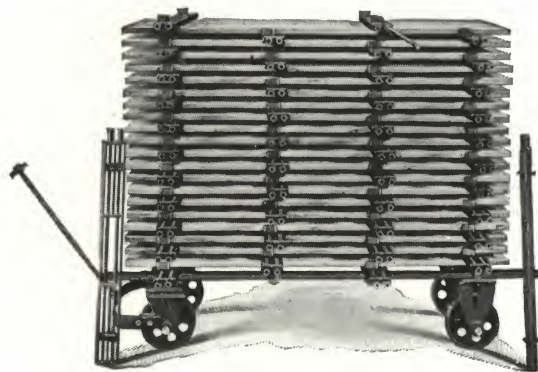
## No. 10

2 ft. ....	\$ 96.80
3 ft. ....	102.64
4 ft. ....	108.52
5 ft. ....	113.32
6 ft. ....	120.24



## Piling Clamps

The Clamping Problem Solved by Our New Piling Clamps



Two Clamps in One

Takes Any Thickness of Stock

Clamps Have Right and Left Hand Screws

The above illustration shows our double acting, double piling clamp applied to one-inch stock. The whole pile is securely bound together and they automatically pile one piece straight above the other. The illustration shows four clamps on each layer, two applied above and two below. Each side of the board gets the same pressure. Two clamps and two dividing pieces the thickness of the clamp are used for each section, and they make the boards solid for hammering straight. The clamp is fastened to the truck the same as if to a board. It is not necessary to have the iron truck as shown; any factory truck can be used.

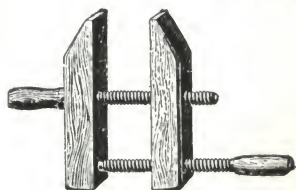
One strong feature of this clamp is the fact that it can be used on any thickness of stock. The above illustration shows it applied to stock two inches and four inches thick. In using it this way one clamp is on the top and one is on the bottom, directly opposite to it. Another feature of the clamp is it can be used on stock any length and piled one above the other, true and straight. Neither is it necessary to be all of a uniform width.

### PRICE LIST

No.	Open	List price per doz.
80	24	\$40.00
81	30	48.00
82	36	54.00

Every one dozen of these clamps means two dozen clamps.

## WOOD HAND SCREWS



Our Hand Screws are just as strong as the sturdy hickory of which they are made.

Instead of lessening the natural strength of the wood, we retain it uninjured in the threads, by making them saw cut with a special machine, and the wood is not weakened by having a V-shaped tool forced through it, tearing and bruising the grain.

The threads on the spindles are 25 per cent stronger and more lasting than those of other hand screws.

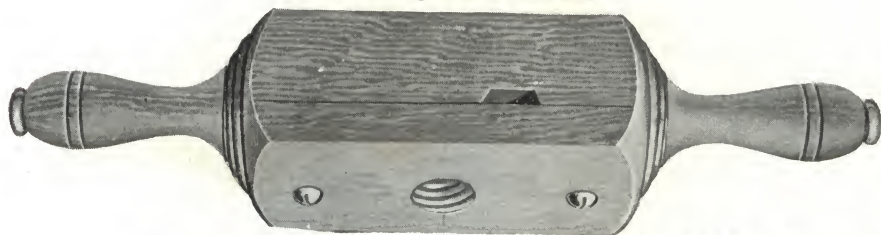
All our spindles are made of selected second growth hickory stock, air seasoned, and under test shown extraordinary twisting resistance, tough, and practically unbreakable. They are all tumbled and waxed.

The extra strength of the spindles, threads and jaws represents added value above all others—without any additional cost to you.

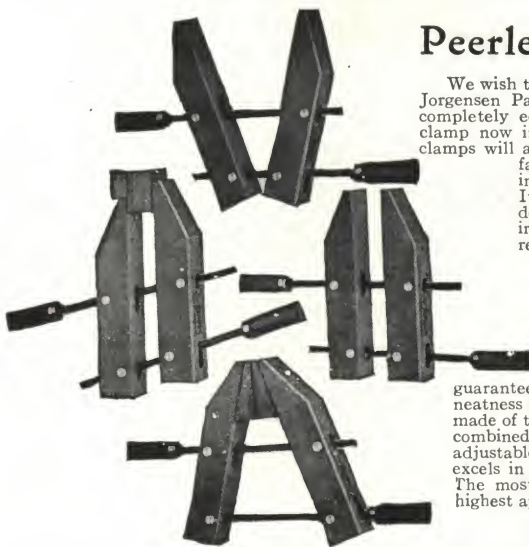
No.	Diameter Screw Inches	Length Screw Inches	Length Jaw Inches	Size of Jaw Inches	Open Inches	List Price Per Dozen	No.
800	1 1/4	28	24	3 x 3	17	\$50.00	800
801	1 1/4	26	22	2 3/4 x 2 3/4	15 1/2	45.00	801
802	1 1/4	24	20	2 5/8 x 2 5/8	13 3/4	40.00	802
803	1 1/4	22	20	2 1/2 x 2 1/2	12	36.00	803
804	1 1/8	22	18	2 1/2 x 2 1/2	12 1/4	34.00	804
805	1 1/8	20	18	2 3/8 x 2 3/8	10 1/2	32.00	805
806	1	20	16	2 3/8 x 2 3/8	11	30.00	806
807	1	18	16	2 1/4 x 2 1/4	9 1/4	28.00	807
808	7/8	18	14	2 1/8 x 2 1/8	10	26.00	808
809	7/8	16	14	2 x 2	8 1/4	24.00	809
810	7/8	16	12	1 7/8 x 1 7/8	8 1/2	21.00	810
811	3/4	14	12	1 3/4 x 1 3/4	7 1/4	19.00	811
812	3/4	12	10	1 5/8 x 1 5/8	5 1/2	16.00	812
813	5/8	10	8	1 3/8 x 1 3/8	4 1/2	14.00	813
814	5/8	8	7	1 1/8 x 1 1/8	3	12.00	814
815	1/2	6	5	1 x 1	2	11.00	815
816	3/8	5	4	7/8 x 7/8	1 1/4	10.00	816

## Screw Boxes and Taps

For Cutting Wood Threads



Size of Tap	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"
Price, per Set....	\$6.00	6.00	6.00	6.28	7.50	8.00	8.80	10.00	12.00	15.00	17.00



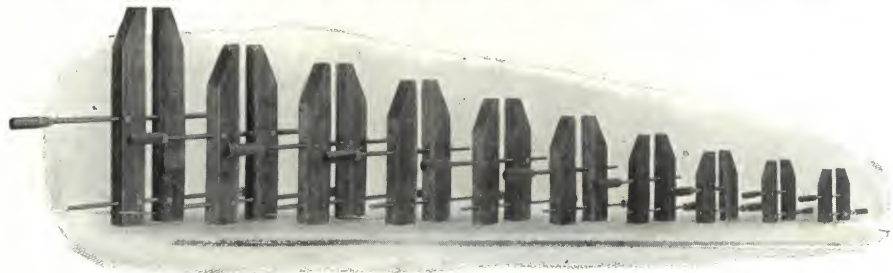
## Peerless Jorgensen Clamps

We wish to call the attention of all woodworkers to the Jorgensen Patent Clamp, illustrated on this page, that completely eclipses in every particular the wood screw clamp now in use. Its vast superiority over all other clamps will appear at first glance. It is nearly twice as fast as any other clamp made, its spindles being equipped with a right and left-hand thread. Its jaws can be adjusted to any angle, thus doing away with the necessity of squaring up irregular surfaces, which every other clamp requires. One jaw can be made to overlap the other, forming a position very often desirable, and obtained in no other clamp. It has a tighter grip than any other clamp, and obtained with less power. Glue will not adhere to the spindle, causing the thread to strip, as is true of all other clamps. Its parts are not liable to become separated. We guarantee these clamps against breakage. It combines neatness and durability. Its spindles and sockets are made of the best steel, and its jaws of seasoned maple, combined in a workmanlike manner. Not only do its adjustable features make it an invaluable tool, but it excels in every particular in ordinary straight work. The most critical users of hand screws place their highest approval upon them.

### ADJUSTABLE TYPE

No.	Length of Jaws	Maximum Opening Between Jaws	Net Weight Per Doz.	Price Per Doz.
5/0	4 in.	2 in.	5 lbs.	\$15.00
4/0	5 in.	2½ in.	6 lbs.	16.20
3/0	6 in.	3 in.	11 lbs.	18.00
2/0	7 in.	3½ in.	12 lbs.	19.20
0	8 in.	4½ in.	23 lbs.	21.00
1	10 in.	6 in.	30 lbs.	24.00
2	12 in.	8½ in.	48 lbs.	27.00
3	14 in.	10 in.	58 lbs.	30.00
4	16 in.	12 in.	85 lbs.	36.00
5	18 in.	14 in.	100 lbs.	42.00
6	20 in.	14 in.	112 lbs.	48.00
7	24 in.	17 in.	130 lbs.	60.00

### Non-Adjustable Steel Spindle Hand Screw Clamps



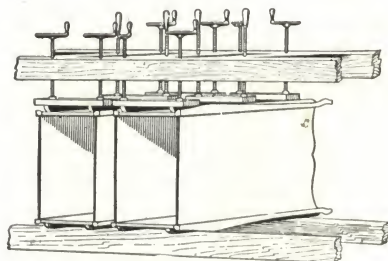
No.	Length of Jaws	Maximum Opening Between Jaws	Net Weight Per Doz.	Price Per Doz.
915	6 in.	3 in.	11 lbs.	\$18.00
914	7 in.	3½ in.	12 lbs.	19.20
913	8 in.	4½ in.	23 lbs.	21.00
912	10 in.	6 in.	30 lbs.	24.00
910	12 in.	8½ in.	48 lbs.	27.00
908	14 in.	10 in.	58 lbs.	30.00
906	16 in.	12 in.	85 lbs.	36.00
904	18 in.	14 in.	100 lbs.	42.00
902	20 in.	14 in.	112 lbs.	48.00
900	24 in.	17 in.	130 lbs.	60.00



## Pony Clamp Screws



Type C



Clamp Screws for Light Glue Work



Type H

Use "JIGS" for quantity production in your Glue Room. Make wood frames of suitable form for your own particular requirements. Wherever you wish pressure applied, drill a round hole and drive in a "PONY" Clamp Screw. That's all.

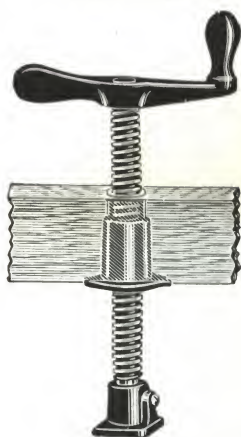
Avoid tying up your heavy machines for light work. Get faster production than any other method.

Made with Iron Crank or Wood Handle. Steel Screw  $\frac{1}{2}$ " diameter with special rapid acting threads Iron Bushing or Nut to drive in  $\frac{3}{4}$ " round hole which may be further secured in place with screws. Gives 4" movement through  $2\frac{1}{2}$ " bar.

"PONY" Clamp Screws are quickly taken out of an old form and applied to a new one, as good as new. **Price, \$10.00 per dozen.**

## Little Giant Press Screws

Same Type as Our Pony Clamp Screws Except Heavier and Stronger



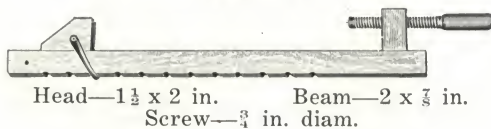
These Press Screws are designed for use in assembling and gluing up frames, shapes, forms, cabinets, etc., in special wood presses fitted to your requirements for production in quantities at low cost. They can be readily installed in wood frames or moved from one to another as required. Several of the Screws will do a quicker and better job than one big one, and they may be used conveniently in many places where heavier screws could not.

These Screws are cut from Cold Drawn Steel and are  $8\frac{5}{8}$ " long and  $1\frac{1}{4}$ " diameter. The special heavy square threads will give great pressure and long service. Further, the convenient form of handle makes for quick adjustment and gives bearing for both hands.

The threaded bushings are made to drive in holes 1" in diameter, and to be further secured by screws if necessary. All castings are of best refined malleable iron.

Packed one dozen Press Screws in fibre shipping case. Weight, packed, per dozen, 16 lbs. Price, per dozen.....\$15.00

## Johnston's Improved Cabinet Makers' Clamps, No. 3



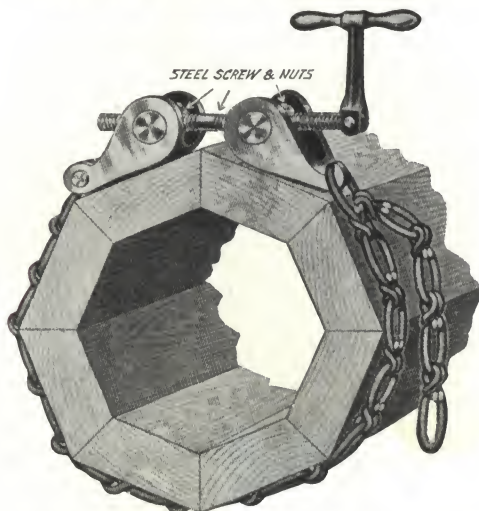
		Per Doz.		Per Doz.
To open	2 feet	\$22.00	Clamp Heads, with Screws	\$9.00
"	3 "	27.00	" Screws Only	6.50
"	4 "	30.00	" Toes Only	7.00

## Johnston's Improved Cabinet Makers' Clamps, No. 1

Head—2 x 2 1/2 in. Beam—2 x 1 1/2 in.  
Screw—1 in. diam.

		Per Doz.	No.	Per Doz.
To open	2 feet	\$31.00	1 Clamp Heads, with Screws	\$14.00
"	3 "	34.00	" " Screws only	8.00
"	4 "	36.00	" " Toes only	8.40
"	5 "	39.00		

## Noxall Column Clamp



After a trial of this wonderful labor-saving device. It stands supreme as a column clamp. Try it and be convinced.

For clamping all kinds of staved columns, tanks or any round or polygon forms from 4 inches in diameter up.

Greatest labor-saving device on the market. Stock size takes columns 16 inches in diameter and under.

Price, with 4 ft. chain, as above, per dozen.....\$40.00  
Less than dozen lots, each..... 4.00

F. O. B. Shipping Point. For longer chains add 10c per foot to price.

## Banks Mitre Clamp

PATENTED

No Fussin' No Cussin'

HANDY AS A HANDSCREW  
SELF-ADJUSTING

\$3.50 Each

\$36.00 Per Doz.

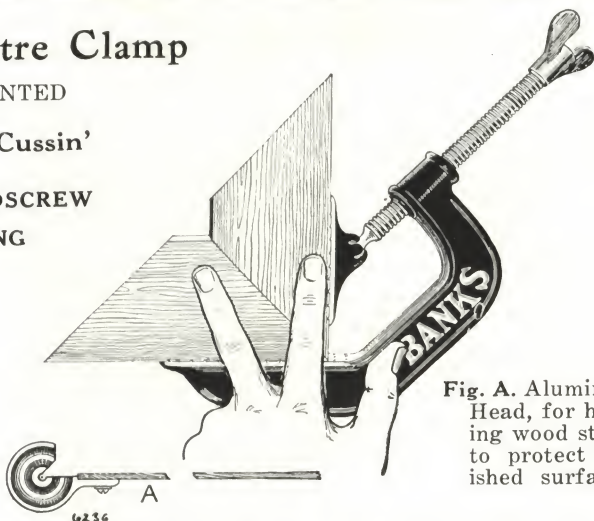
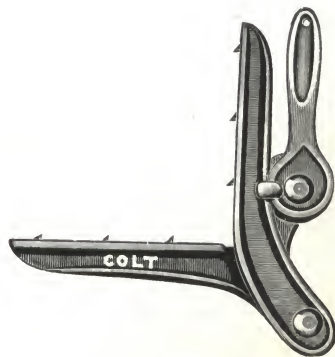


Fig. A. Aluminum Head, for holding wood strips to protect finished surfaces.

Wood workers realizing the difficulties in clamping mitre joints will appreciate this simple mitre clamp. Stock of any width and thickness and joints up to 45 degrees can be readily brought together with this clamp.

The castings are made of the best malleable iron, the screw of cold rolled steel.

## Colt's Mitre Clamp



One motion of the cam sets the mitre and firmly clamps it in place, the pressure being made direct on the clamp jaw giving it great power. Special attention has been given the design to make it light as well as strong. Positive in action, easy to apply, no springs to get out of order. Made of the best refined malleable iron with steel spurs.

Per dozen.....\$36.00

## B. B. Mitre Clamp



Simple	Inexpensive	Quick	Effective	Compact
	Light	Self-Adjusting	Strong	

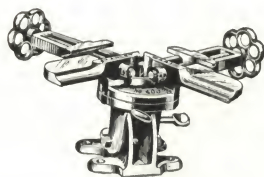
Price List

Per Dozen

To open up to 8 inches.....	\$47.50
Holder for above, 40c each; 80c per pair.	



## Stanley-Marsh Mitre Vice



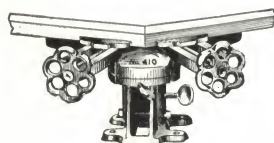
Vise fastened to table

No. 400

The Mitre Vice meets every requirement of a picture frame clamp for square corners. The jaws hold the two sides of the frame firmly in position for nailing. Provision is made for resawing the joint if it does not make up tight.

It will clamp any type or width of moulding less than 4 inches wide and join any frame larger than  $3\frac{1}{2} \times 3\frac{1}{2}$  inches. It has the universal base of the mitre machine.

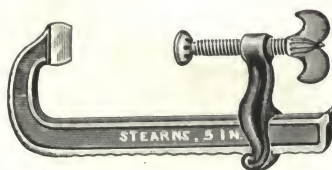
Shipping weight 18 lbs.



Vise tilted for nailing

No.	Each
400 Mitre Vice.....	\$8.00

## No. 63 Adjustable Screw Clamps



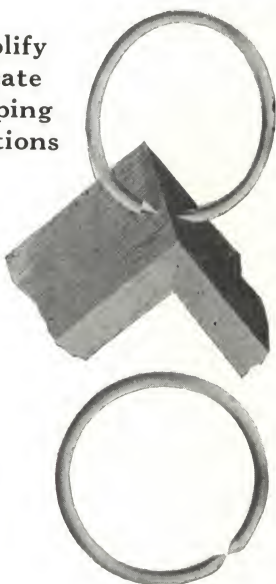
Made of the best refined malleable iron, and so proportioned as to give the greatest strength for the weight of metal. The shape of the thread on the thumb screw is the strongest made, and so fine that the utmost power in clamping is secured without the use of a wrench. They cannot slip, and will conform to a beveled surface.

### LIST PRICES

			Per	doz.,	
3 inch.....	10 lbs.....			\$10.00	
5 " .....	14 " .....		"	14.00	
7 " .....	28 " .....		"	22.00	
9 " .....	32 " .....		"	26.00	
12 " .....	40 " .....		"	34.00	
16 " .....	44 " .....		"	46.00	

Packed in bulk.

### Simplify Delicate Clamping Operations



## Open Spring Rings

Miter clamping is only one of the numerous clamping operations in industry where these open spring rings are ideal for instantly applying just the right amount of pressure at exactly the right points. The sharpened points of these open rings can be used where no other clamp jaws will take hold.

The rings can be opened and slipped into the place quickly and easily, even by unskilled help, and they can be removed just as quickly.

2" dia.,  $\frac{1}{8}$ " wire. Dozen.....\$4.60

3" dia.,  $\frac{5}{32}$ " wire. Dozen..... 5.80

4" in. dia.,  $\frac{3}{16}$ " wire. Dozen..... 7.00

5" dia.,  $\frac{1}{4}$ " wire. Dozen..... 8.50

Larger sizes to order.

## Standard Carriage Clamps

These clamps are very heavy and strong, have wrought iron screws with clean, full threads.



Opens.....	3 in.	4 in.	5 in.	6 in.	8 in.	10 in.
Price.....dozen	\$8.00	\$11.00	\$14.00	\$18.00	\$28.00	\$36.00

## Body Clamp

Deep and very strong. Designed especially for the automobile body trade and work requiring a longer reach than the ordinary "C" Clamp will take care of.

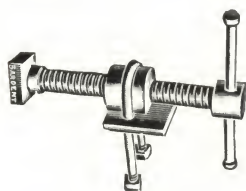
Steel screw with deep cut "Acme" thread and good bearing, giving more power than the ordinary square thread and lengthening the life of the tool.

Furnished with either button or oscillating (ball and socket) tip. When ordering, please state which is wanted.

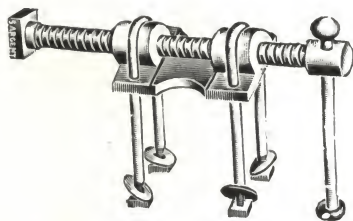


Opening, inches ..	3	4	5	6	7	8	10	12
Depth, inches....	$2\frac{5}{16}$	$2\frac{1}{2}$	$\frac{3}{4}$	$3\frac{5}{16}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4	$4\frac{1}{4}$
List, per dozen...	\$11.00	\$14.00	\$18.00	\$22.00	\$28.00	\$34.00	\$42.00	\$50.00

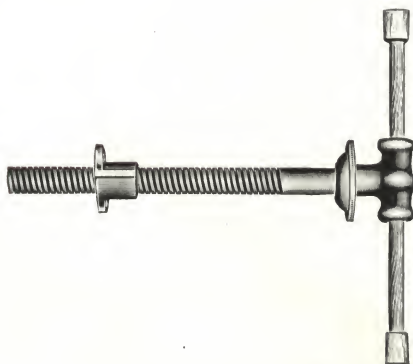
## Clamp Heads



No. 11, Wrought Screw, Iron Handle.  
INCH 1  
Per each .....\$3.80



No. 12, Wrought Screw, Iron Handle.  
INCH 1 1 1/8 1 1/4  
Per each .....\$5.00 \$6.00 \$7.50



## Iron Bench Screws

The screws are steel, castings are extra heavy, handle is hard wood. The threads are accurately cut. These Bench Screws are carefully made and are high-grade goods.

No. ....	1	1 1/8	1 1/4
Diameter .....	1 in.	1 1/8 in.	1 1/4 in.
Length .....	16 1/2 in.	16 1/2 in.	17 1/2 in.
Weight .....	4 1/2 lbs.	5 1/2 lbs.	6 1/2 lbs.
Price each ....	\$1.75	\$2.00	\$2.25

## Wood Bench Screw

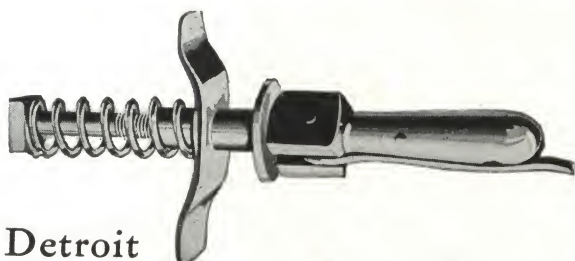


The Saw-Cut Threaded Wood Bench Screw is particularly tough and durable, as it is carefully saw-cut from hard, white maple. The stock from which these screws are cut is selected for its cutting qualities after having been thoroughly seasoned.  
Number 18, 2x24 inches, V thread, each....\$3.50  
Number 19, 2 1/2 x24 inches, V-thread, each.. 4.00

Tail Screws, with 24x5 1/2-inch nut.

Wood vise handles, 13 1/2 inches long, 1 inch diameter, threaded knob at one end.





## Detroit Safety Shaper Form Clamp

A plant that believes in adopting every reasonable safety device to protect its workers. Large body plants put them in the hands of their skilled workers. It helps the morale of the men—and the quality of the product.

Complete Clamps.....\$8.00 Each, net

Above Include Details 1, 2, 3, 4, 5, 6

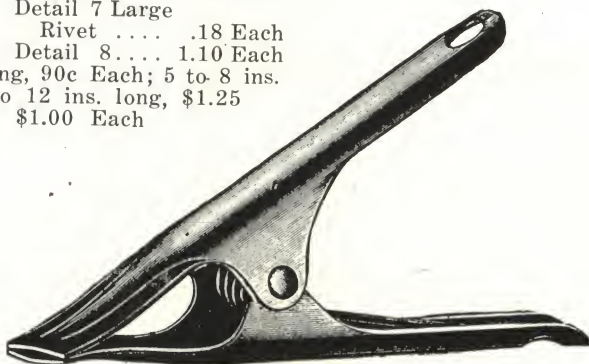
Detail 1....\$6.65 Each	Detail 6 Small	
Detail 2.... 1.25 Each	Spring ...	.12 Each
Detail 3.... 1.25 Each	Detail 7 Large	
Detail 4.... .50 Each	Rivet ....	.18 Each
Detail 5 Rivet .12 Each	Detail 8....	1.10 Each
Detail 9.... 2 to 4 ins. long, 90c Each; 5 to 8 ins. long, \$1.00 Each; 9 to 12 ins. long, \$1.25 Each; Spring, \$1.00 Each		

Hardened Throughout

## A Safety Shaper Clamp!

Note that one side and bottom are flat. It is impossible to injure a hand by its slipping past the center. The cost of the shaper is small compared to the increased comfort from the knowledge that knuckles are safe from bruising.

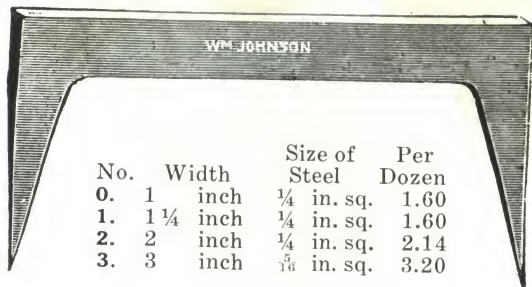
Adopted by the  
Ford Motor Co.



## Plier Spring Clamps

Made of Steel  
and equipped  
with oil tempered  
springs

	Number	1	2	3	4
Length over all.....inches	4	6	9	12	
Width of Jaw.....	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{3}{8}$	
Jaw opens .....	1	1 $\frac{1}{2}$	2 $\frac{3}{4}$	4	
	Per dozen	4.00	5.40	8.54	12.80
	Each	.40	.50	.80	1.20



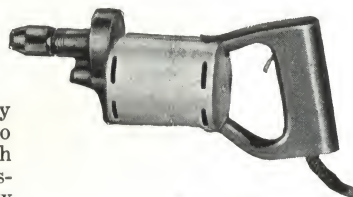
## Cabinet Makers Pinch Dogs

Forged from bar steel  
The corners are square

No.	Width	Size of Steel	Per Dozen
0.	1 inch	$\frac{1}{4}$ in. sq.	1.60
1.	1 $\frac{1}{4}$ inch	$\frac{1}{4}$ in. sq.	1.60
2.	2 inch	$\frac{1}{4}$ in. sq.	2.14
3.	3 inch	$\frac{5}{16}$ in. sq.	3.20

## Type 53 — Capacity $\frac{1}{4}$ " — Speedway Portable Drill

Here is a powerful portable drill, capacity  $\frac{1}{4}$ " in steel—special drawn steel housing to prevent breaking when dropped, to add strength and decrease weight. Finest type of drill housing known. Automatic, self-tightening 3-jaw chuck that opens by quick wrist snap. Used in garages, factories and on installation and maintenance jobs where rugged drilling up to  $\frac{1}{4}$ " in steel is demanded. Universal Motor.



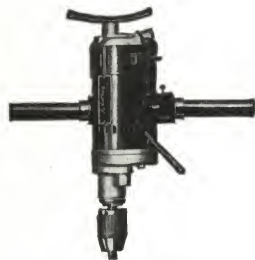
Type 53

Type	Cap. Steel, Inches	Full Load Speed	Weight, Lbs.	Price, Each
53	$\frac{1}{4}$	1000	5	\$25.00

Specify Voltage. Add \$3.00 for 32 or 220 volts.

## Type 60 — Capacity $\frac{1}{2}$ " — Speedway Portable Drill

Look for compactness, long lasting qualities, and unusually light weight in this tool. Castings have given way to drawn steel tubing for motor housing, adding greater strength and at the same time reducing weight. Equipment includes Breast Plate, Extra Side Handle, Self-Tightening 3-Jaw Chuck—8 Ft. Rubber Lead Cord. Used by garages, repair and machine shops, contractors, installers, and maintenance men. Universal Motor.



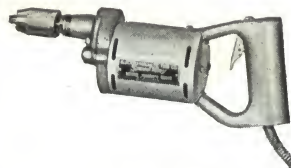
Type 60

Type	Cap. Steel, Inches	Full Load Speed	Weight, Lbs.	Price, Each
60	$\frac{1}{2}$	400	12	\$48.00

Specify Voltage. Add \$3.00 for 32 or 220 volts.

## Type 157 Speedway Portable Screwdriver and Nut Tightener

This tool is probably the lightest and most compact driver ever made for small and medium screws and nuts. Accomplished thru the use of drawn steel housings. Standard equipment includes positive clutch—although we can include a slip clutch for \$10.00 extra. You may also have special types of gear trains to produce varying speeds for special requirements at \$3.00 extra. Universal Motor.



Type 157

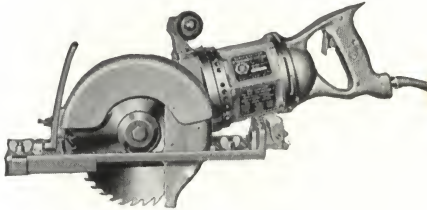
Price .....\$55.00

Specify Voltage.

Add \$3.00 for 32 or 220 volts.

## Black & Decker Portable Electric Saws

**"With the  
Pistol Grip  
and Trigger  
Switch"**



**Universal  
Motors  
Operate on  
A. C. or D. C.**

<b>6 in.....</b>	<b>\$95.00</b>
<b>8 in.....</b>	<b>135.00</b>
<b>10 in.....</b>	<b>165.00</b>

These handy tools are the latest members of the Black & Decker family. Light and comfortable to handle, they embody all of the sturdy principles of construction that put Black & Decker Drills first in their class. The ball-bearings used throughout the Saws insure smooth easy running. The powerful motors drive the blade through the toughest wood so easily that sawing really becomes a pleasure. They are fully adjustable as to angle and depth, and the blade is enclosed with a telescopic guard, making them perfectly safe. Saws will not overheat under the most gruelling conditions.

### Specifications

Diameter of Saw blade.....	6"	8"	10"
Cutting capacity, depth of cut.....	1 3/4"	2 1/2"	3 1/2"
No load speed of Saw .....	300 RPM	2500 RPM	2000 RPM
Net Weight .....	18 1/4 lbs.	26 lbs.	33 3/4 lbs.

Chrome-nickel gears and shafts throughout.

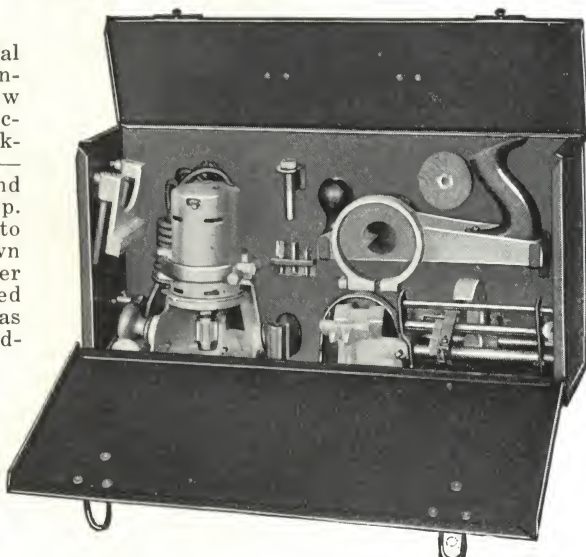
### Equipment Includes:

One rip and one cross-cut Saw blade, one adjustable saw fence, three conductor cable with attachment plug and one wire for grounding, one combination packing and carrying case with handle, painted in attractive green.



## Speedway Type 300 Electric Planer and Router Kit

Again a single central power unit works to advantage in producing a low priced set of portable electric tools for the woodworking trade. Electric Planer—planes up to 2 3/8" wide and from 1/32" to 3/32" deep. Electric Router cuts up to 7/8" deep. Set has its own grinding rig so that planer blades can be re-sharpened right on the job. Planer has innumerable uses in building jobs when trim is being set. Router saves time and money in routing out doors and door-jamb— for hinge butts—preparing woods for inlay work, etc. Kit includes Motor—Planer and Cutter—Grinding Rig—Router & Cutter—Grinding Wheel, 1/4" Chuck for wood drilling—2 Wrenches and steel carrying case. Universal Motor.

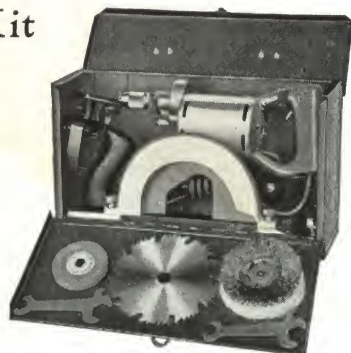


Price Complete .....	\$85.00
Router and Motor alone .....	45.00
Planer and Motor alone .....	65.00
	Add \$3.00
	for 32 or
	220 volts.

Specify  
voltage

## Speedway Type 281 Combination Drill and Saw Kit

Five power driven portable electric tools are built into this kit. One power unit is adapted to all five to make an exceptionally attractive price for so practical a set. The set includes a portable electric drill, capacity 1/4" in steel—portable saw grinding wheel—buffer—scratchbrush—motor stand accessory arbor, wrench, and a steel carrying case so that you can take the entire set with you to any job you may have. Any one of these tools will return its price in short order, but the combined set constitutes one of the finest values we've ever been able to offer. Universal Motor.



Price .....	\$42.50
	Add \$3.00
	for 32 or
	220 volts.

Specify  
voltage

## Black & Decker Electric Hammers

Cut shows electric hammer being used with wood chisel. Cutting bevel on heavy hardwood timber.

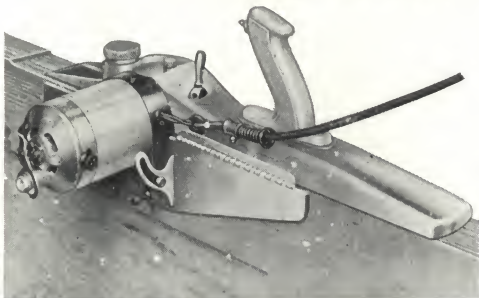


Making large mortises in heavy timbers. First workman drills series of holes with electric drill and second workman uses electric hammer which finishes square large mortise.



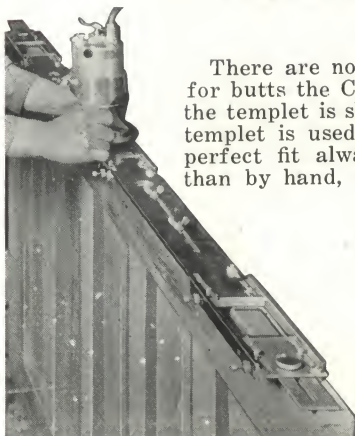
## The Carter Door Set

—IT'S ELECTRIC—



—The super plane—Finishes any edge up to  $2\frac{1}{4}$ ", leaving a dead smooth surface. Front shoe adjustable for depth of cut. Apron adjustable for angle cuts up to  $45^\circ$ . Bench bracket converting to jointer and complete grinding attachment for sharpening cutters. Standard equipment. Price, complete .....\$118.00

## THE HINGE BUTT ROUTER



There are no mistakes in cutting out for butts the Carter way. At the right, the templet is shown on the jamb. Same templet is used on the door insuring a perfect fit always. Many times faster than by hand, and but one-quarter the effort. Templet fully adjustable to any size butts and doors.

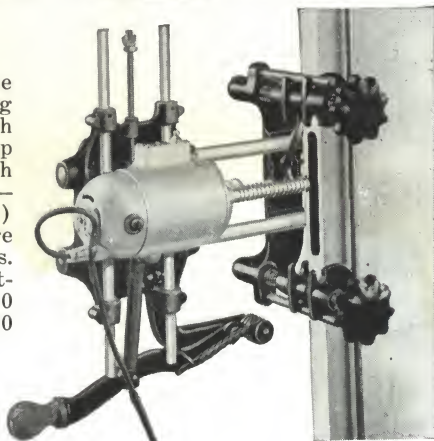
Price: Router, Templet, 4 bits and grinding wheel. ....\$105.00



## THE LOCK MORTISER (Automatic Feed)

A mortise cut in half a minute—the Carter way. Machine is self centering on any width door. Length and depth of cut is set before starting. Just pump the handle—machine feeds the depth itself. Cuts clean, smooth and fast—always. A templet is furnished (extra) for cutting for lock face, using hinge butt router.  $\frac{1}{8}$  to  $1\frac{1}{4}$  mortiser cutters. Price, mortiser complete with 2 cutters (specify size).....\$105.00  
Lock face templet..... 20.00

Folder A describes in detail.



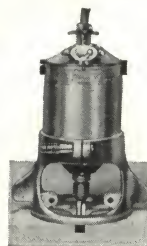


## Carter Electric Routers

### One for Every Need

Machine at right is the  $\frac{1}{7}$  H. P. Router with 18,000 R. P. M. speed making it particularly adapted to such work as line, two-tone, inlay and other light routing. It is a truly economical machine, costing slightly over a cent an hour to operate. Most powerful motor for its size in the world. May be used with extra attachment for beading and fluting spindles.

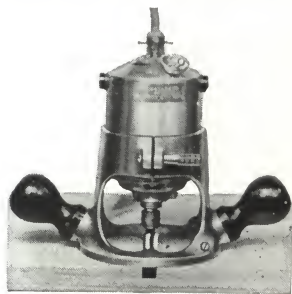
Price, R-7 Router, complete with templet guide. .... \$46.50



Machine at left is the  $\frac{1}{4}$  H. P. Router—Same speed as R-7 above but develops over twice the power. Will do all the work of the smaller machine and cuts twice as heavy. With pilot bits will cut corner beads, rounds, chamfers and coves. Templet supplied (extra) for dovetailing. Costs approximately two cents an hour to operate.

Price, R-4 Router, complete with Templet Guide and Straight and Circular Gauge.....\$68.00

Straight and Circular Gauge for R-7..... 5.00

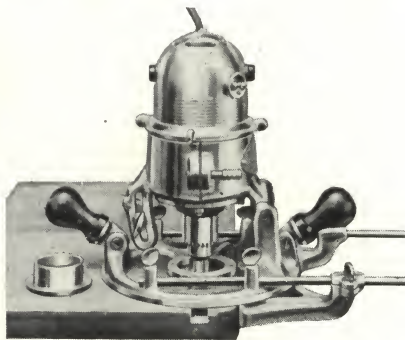


Machine at right is the  $\frac{3}{8}$  H. P. Router which develops over  $\frac{1}{2}$  H. P. and has a speed of approximately 15,000 R. P. M. Made for those jobs that are a bit heavy for the R-4 and being heavier is particularly adopted for steady application. For all medium routing requirements. Furnished with either 8" tilting base (as shown) or with 5 $\frac{1}{4}$ " plain base. Plain base for dovetailing.

Price R-5, with tilting base, edge gauge and Templet Guides.....\$117.00

R-5, with plain base only..... 102.50

Dovetail attachment, comp..... 49.00



Machine at left is the heavy duty Router, made expressly for stair routing, dadoing, moulding, panel sinking, fluting columns and pilasters, and all other applications where a portable machine may be used. Motor turns over 12,500 R. P. M. and while rated at  $\frac{1}{2}$  H. P. it has an actual development of  $1\frac{1}{2}$  H. P. This machine like all other routers on this page has the exclusive Carter depth adjustment.

Price, R-2 Router with Templet Guide, Edge Gauge and  $\frac{3}{4}$ " Bit.....\$175.00

Folder C describes above in detail.

Folder E describes stair router set.

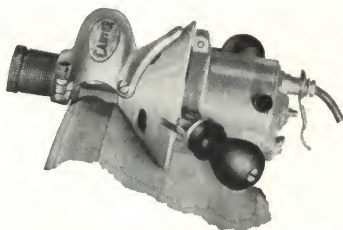
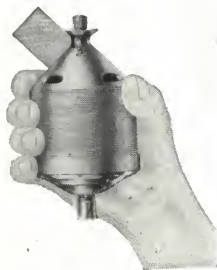


## Carter Electric Shapers

### The Original Hand Shaper

An invaluable tool in any wood shop for all shapes of corner and surface cuts including beads, coves, chamfers, rabbets and rounds up to approximately  $\frac{5}{8}$ " wide. Most powerful motor of its size ever made; 18,000 R. P. M. speed, 3" dia., 3 lbs. Attachments also supplied for bead and rabbet planing on straight or curved surfaces or edges.

Price, hand shaper complete.....	\$35.00
Attachment for straight cuts.....	12.00
Attachment for curved or irregular cuts.....	8.00
Table for S7 Hand Shaper.....	22.00
Drill Chuck (5/32 capacity).....	2.50



### S4 Hand Shaper and Cone

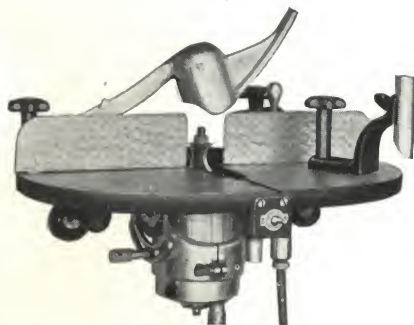
For those cuts that are too heavy for the S7 Shaper, covering corner rounds, beads, chamfers and coves up to  $\frac{3}{4}$ ". Has over twice the power of the S7, and the same speed. Particularly adapted to auto body work, planing mills, etc., and is supplied with attachments for practically any application.

Price, S4 with cone and guide.....	\$72.00
With cone and irregular guide.....	72.00
With cone and both guides.....	80.00

### S4 Shaper with Table

Using the S4 motor which may be immediately removed from any other attachment and slipped into the table as shown. Both this table and the S7 table incorporate the well known exclusive carter tilting feature which permits the use of small diameter, inexpensive cutters. May be fastened to edge of table or bench, or can be furnished with pedestal from floor.

Price, S4 with table and straight and circular guide (as shown) .....	\$121.00
Floor pedestal for above.....	18.00



### S2 Table Shaper

Uses the same motor that is used in the R2 Router that is described in the following pages, which slips out of the router base and into the motor holder under table. The screw type router chuck may be quickly removed and replaced with the shaper spindle.

Spindle speed of over 12,500 insures smooth work, practically eliminating the need for a double spindle machine. Motor, while rated at  $\frac{1}{2}$  HP. actually develops over  $1\frac{1}{2}$  HP. Operates from lighting circuit.

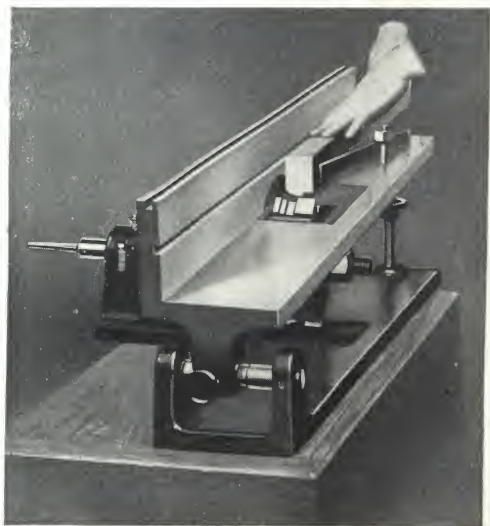
Incorporates tilting feature same as smaller machines above, reducing cutter costs to a minimum.

Price, S2 Shaper, complete with circular guide, ball bearing hold down and starting pin in table, \$288.50

Combination Shaper and Router, including all of above and Router Base equipment, (one motor), \$353.50

Above Machines Fully Described in Folder D





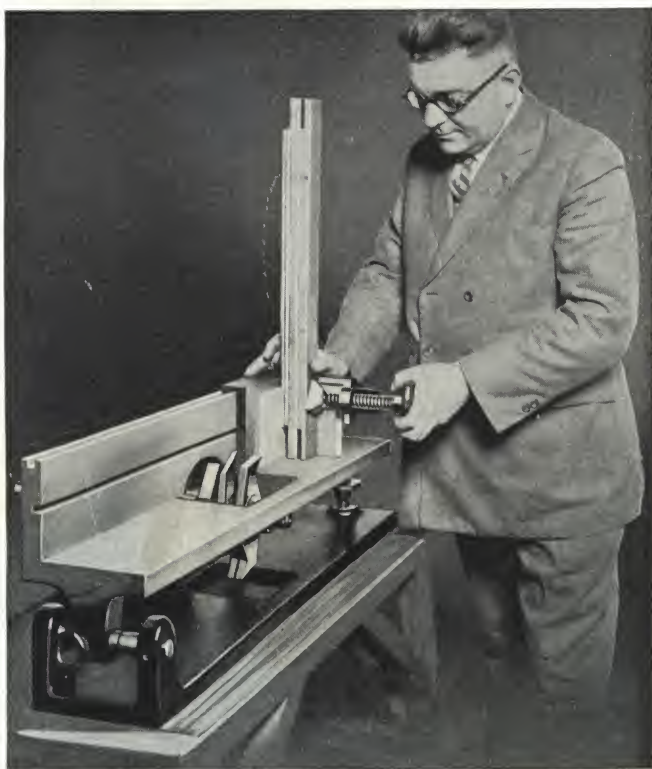
## Knourek Mill Worker

Saves set-ups on large machines and only requires, on an average, about two horse power to operate. Just the thing for getting out odd jobs, working over cut down pieces, making up shortages, etc.

Illustration shows mill knife cutter head cutting sash, cabinet work, etc. Knives cut without variation of shape. Easily set up and free cutting.

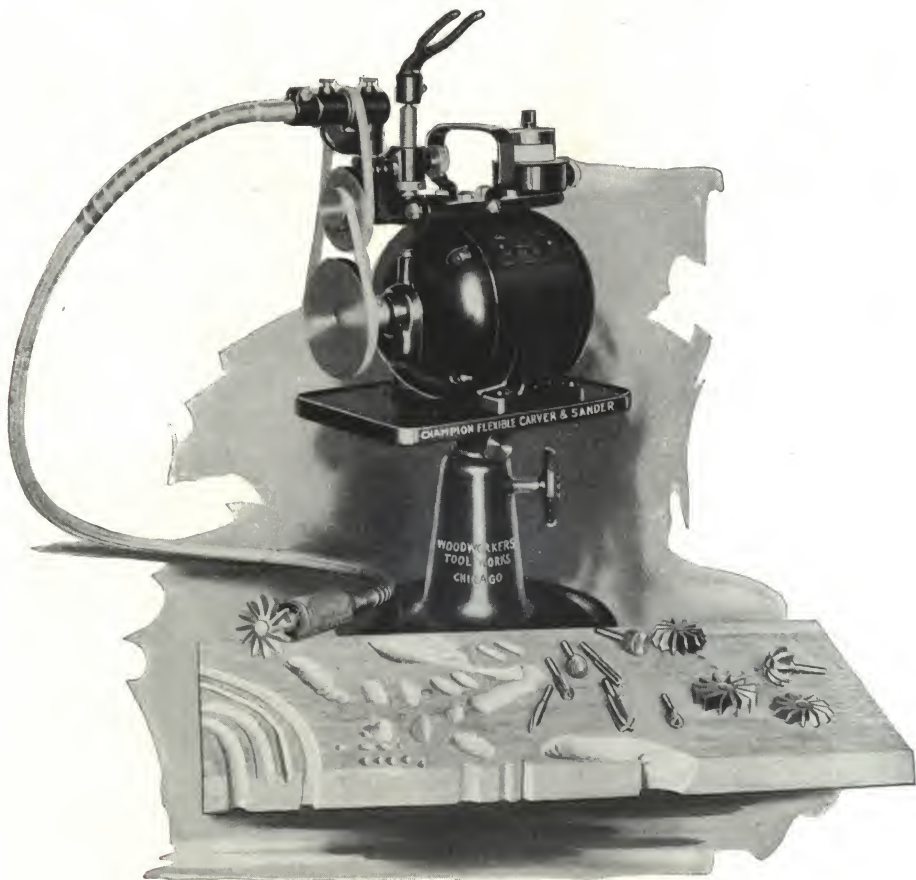
Machine complete with tenoning slide. Wood is clamped into slide and passes over revolving cutters, producing any kind of mortising, coping, grooving, etc., without risks of ordinary wood working machinery.

**ASK FOR  
LARGE  
CIRCULAR  
AND  
PRICE**





## New Flexible Carver and Sander



The small machine illustrated is a new one included in the line handled by the Woodworkers' Tool Works.

Essentially, it consists of a supporting column, a motor base that swivels on the column and pulleys and belts to give an increased speed to the flexible shaft which can be fitted with any one of a variety of small carving cutters or sanding tools.

The fork at the top serves as a convenient rest to support the free end of the flexible shaft when it is not in the operator's hand; near the fork is the snap switch for turning the electric current on and off to start and stop the motor.

This machine is made in models small enough to be operated from an electric light current and this makes it especially convenient as a useful portable machine for the factory, the small shop or the home shop. The machine is adaptable to a wide variety of uses in the way of working out carvings and enabling the operator to guide by hand the light power-driven tool to do carving and perhaps other kinds of light woodworking rapidly and economically. The machine represents a small investment, occupies very little space and consumes only a small amount of power.

**Price, complete without cutters \$170.**

**Cutters are priced elsewhere in this catalogue.**



### Power Screw Driving and Nut Setting Machine

The "STRAND" Power Screw Driver and Nut Setter is the most powerful, lightest, smoothest running, and neatest designed machine made for driving screws, bolts and nuts. Very convenient, and easy to operate, mounted on portable Iron Stand.

Adjustable tapered friction control, prevents any possible danger to motor, flexible shaft or attachment.

Furnished with 30' stand as shown unless otherwise ordered.

Various type mountings may be furnished when desired.

Regular equipment for types Nos. 4, 5 and 6. Consists of Motor, Three-speed Countershaft, Flexible Shaft, Iron Stand 30' high. Friction Attachment arranged either for screw driving or nut setting as desired.

Cord, Switch and Plug. Larger Sizes Made on Special Order.

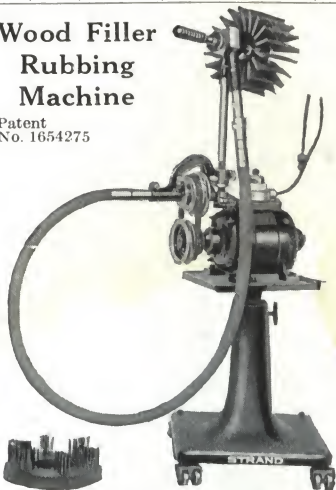
In ordering State Sizes of Screws or Nuts to be driven or submit samples.

#### Specification Power Screw Driver and Nut Setter

Machine	H. P.	Current	Size of Flex. Shaft	Weight With Stand
No. 4	1/4	110 or 220 D. C.	Core 5/16"x5' O.D. Casing 11/16"	125 lb.
No. 5	1/2	D. C. or 110 or 220 A. C.	Core 7/16"x5' O. D. Casing 3/4"	130 lbs
No. 6	3/4	110 or 220 A. C.	Core 1/2"x6' O. D. Casing 1"	220 lbs

### Wood Filler Rubbing Machine

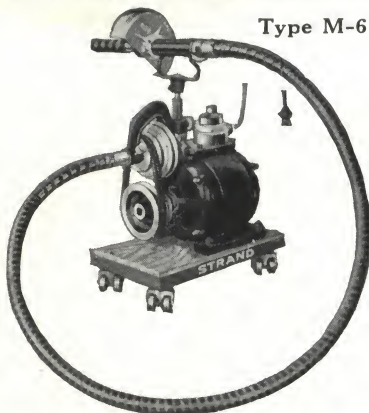
Patent No. 1654275



This machine will do an excellent filling job on open flat surfaces. Made for floor type or suspension mounting. 1/2 H. P. Motor.

## FLEXIBLE SHAFT EQUIPMENTS, VARIOUS TYPES AND SIZES and FOR MANY PURPOSES

Type M-6



Extra attachments not included in regular equipment.

Grinding Wheels: Drill Chuck; Polishing Drum; Scraping Burrs; Tool Post Attachment; Wire Scratch Brush; Cloth Buffing Wheel; Drilling Attachment; Surface and Screw Driving Attachments; Rotary Files.

This machine may be furnished mounted on 30-inch iron stand, also mounted on truck. Portable Swivel Column.

Regular equipment furnished with this machine consists of Motor, Switch, Extension Cord, Caster Base, Three-Speed Countershaft, Flexible Shaft, Spindle, Detachable Handle and Emery Wheel Guard.

This machine will also accommodate many of the extra attachments. It has drilling capacity of 3/4". See illustration below.

#### SPECIFICATIONS OF TYPE M-6 MACHINE

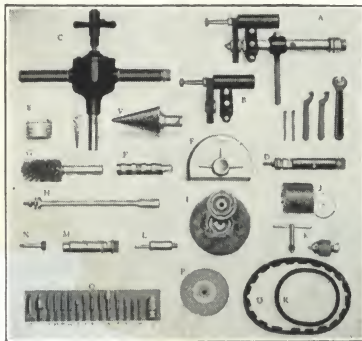
H.P.	Current	Grinding Wheel Capacity	Speeds R.P.M.	Size of Flex. Shaft	Shipping Wt.
1/2	110 D.C. 220J or alternating 60 cycle single phase	6"x3/4"x1/2"	1000 1800 3200	Core 1/2"x6' O.D. Casing	135 lbs

State correct current and voltage desired.

Motors of voltage other than those specified herein are subject to special price.

### These Attachments for Strand Flexible Shafts

When not listed with regular equipment are quoted separately.



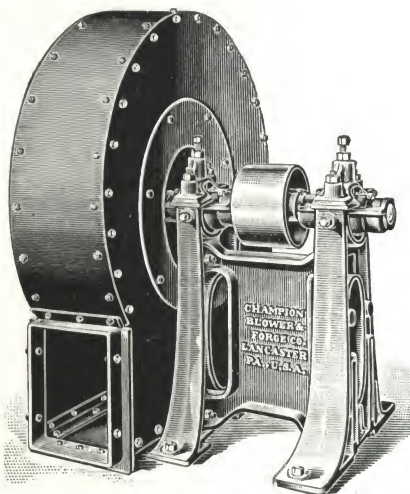
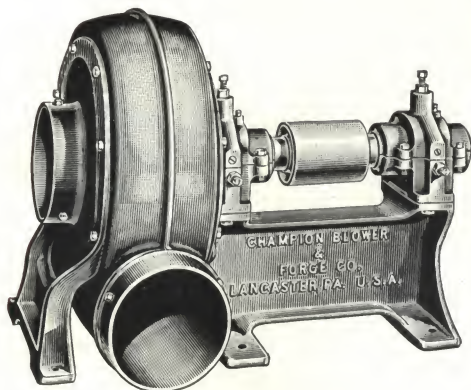
Many Other Types and Sizes. Write for Details.



### Champion Slow Speed, Reversible, High Efficiency Exhausters

All slow speed fans are reversible so outlet can be thrown up, down or out and each fan can be changed from right to left to meet all conditions.

Ask for Prices and Circular



### Champion Type A Cast Iron Adjustable Exhaust Fans

These fans are adjustable both as to discharge and hand and are made in six popular sizes.

Ask for Circular and Price

### No. 146 Champion Eureka Geared Forge

With 18-inch Hearth

No. 146 Champion Eureka Agricultural Forge is equipped with a cut-gear crank-driven blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio gives 48 revolutions of the blast wheel to one turn of the crank, making a strong, steady, high pressure blast with smooth easy turning—crank turning either direction. The gear case is oil-tight and dust-proof, giving modern advantages over the old lever and wheel type of forge, making them very satisfactory forges for general light and medium repair work, such as Garages, Farmers, or any place where a light portable forge is desired. Price \$18.00.



### Common Tongs



Size ....	1	2	3	4	5	6	7	8
Length ..	14	16	18	18	20	20	24	30
Each ....	\$1.50	\$1.25	\$1.00	\$1.00	\$0.80	\$0.75	\$0.72	\$0.65



## Champion No. 68-A Foot Power Mitering Machine



Every person, no matter what their line, whether carpenter, cabinet maker, picture framer or what not, will find the Champion Foot Power Mitering Machine a most useful accessory to their business. It is practically indispensable if there is any great amount of molding to cut.

The machine cuts a perfect miter, no guess work. The steel gauge has two adjustable stops which enable the operator to cut both short and long moldings for a panel. The gauge is two feet long and the attachments are so constructed that the purchaser can put on any length at his pleasure. The stops on the rod can be thrown up and down as indicated in the illustration. Cuts up to 2 1/4 inches wide.

Price . . . . . \$65.00

## No. 87 Foot-power Screen Miter Chopper



Machine is especially adapted to mitering screen moulding and other light work. It is strong and substantial, and cuts perfectly true. The foot treadle is connected to head which carries the knives, and when released by the foot, a strong and substantial spring raises head to top of the stroke.

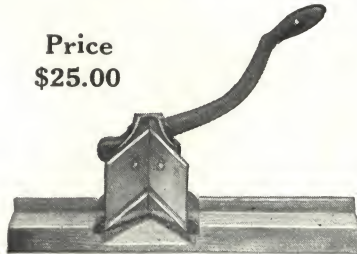
Cuts mouldings up to 1-in. in width.

Height of machine, 50-in.; weight 96-lbs.

Price \$35.00

## Champion Hand Miter Jack

Price  
\$25.00



Carpenters, cabinet makers and others will find the Champion Hand Miter Jack a most useful machine for mitering mouldings. It cuts a perfect miter.

No guess work. Has adjustable jib to compensate for wear. Cuts up to 2 1/2 inches.

## Champion No. 4 Wood Trimmer



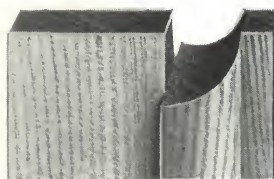
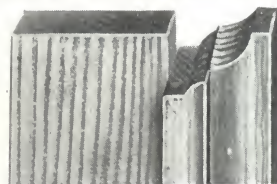
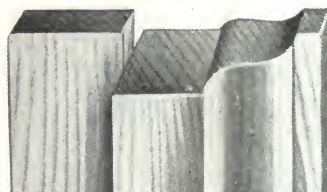
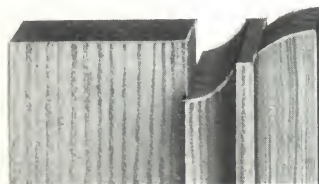
Designed for use in Pattern Shop for cutting square and miter joints or any angle between quickly, leaving a smooth and accurate finish.

Will cut 4" high, 7" wide; cut any grain of wood smooth, either square or one or two-ways draft, by one stroke of handle.

Gauge—Can be ranged any angle from 45 up to 90 degrees by means of thumb screw, the principal angles being marked on bed. Provision is also made to cut angles slightly in excess of standard capacity.

Price \$30.00

## New KNOUREK Electric Coper and Sash Trimmer



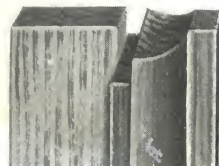
Produces better, cleaner work because of use of high speed revolving cutters instead of blunt edge knives.

This machine is capable of faster and more accurate production than heretofore experienced on other machines, easier in operation and having greater capacity for different kinds of work. Does not tire operator.

This handy machine for millwork, sash, door and furniture factories is moderately priced to place it in the hands of all progressive concerns.

The motor spindle extends far enough out at both ends to receive solid cutters. The bar is easily and quickly positioned on one of the adjustable members of the carriage and then moved upwards past cutter by light pressure on a convenient pedal. The rests have angular adjustments for diamond and other sash and doors and divided lights are quickly turned out.

Price complete with  $\frac{1}{2}$ -h.p. motor, 110 or 220 volt single or three phase 3600 r. p. m., and 1 solid steel cutter with bed piece to match, **\$200.00**  
f. o. b. Chicago.....

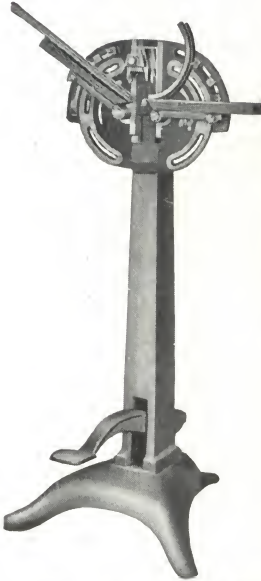




# The American Sash Trimmer

## FOR DIVIDED LIGHT AND FANCY SASH

We illustrate herewith a splendid tool for making all kinds of Diamond Light and Fancy Sash in the quickest possible time and at a great reduction in cost over the usual method of fitting up.



**The Standard Style  
Rapid and Accurate**



**The Face Plate** is of a special design and carries swinging tables which can be clamped at any angle in relation to the cutters by hand wheels at the back side of the plate. The face plate contains grooves to receive a set of stops, engaging with the "Spring Pins" in the ends of the tables which enables you to set different angles and afterward return to the same position without any delay in resetting. The edge of face plate is graduated to locate the tables instantly at the angles of 30, 45, 60 and 90 degrees.

**On the Tables** are wooden bed pieces which are grooved to fit sash bar and prevent splintering of the work. The tables can be swung below the center if necessary to cut the right way of the grain. The face plate also carries two special stops for use in fitting up curved work.

**Extra Cutters for Different Patterns of Sash Bar Can Be Furnished at Any Time and Prompt Attention Is Given All Such Orders**

# The American Sash Trimmer

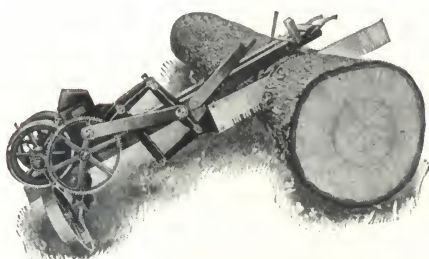
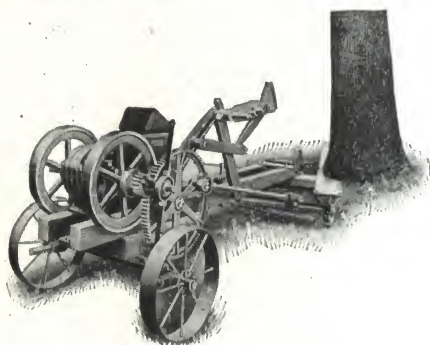
Description	Net weight	Price
Standard Machine, including one pair cutters and bed pieces,	160 lbs.	\$120.00
Extra Sash Cutters, per pair.....		15.00
Extra Bed Pieces, per pair.....		6.00
Extra Mitering Knives, per pair.....		8.00
Mortising Head .....		25.00
Mortising Chisel .....		4.00
Miter Box .....		9.00



## WITTE Log and Tree Saw

### WITTE TREE SAW

Under favorable conditions an experienced operator can drop trees at the rate of one to five minutes each. Capacity one foot to five foot diameter and larger with special blades.



### WITTE LOG SAW

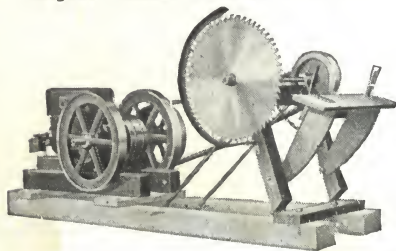
Will make cuts on two-foot logs in from one to two minutes each. Capacity one foot to five foot diameter and larger with special blades.

### WITTE Power Saw

A labor saving rig that should be on your farm or ranch. It will make money for you by saving the expense of hired labor. You can saw for yourself or for your neighbors and friends and make good money.

This WITTE Buzz Saw Outfit is built on a quality basis all the way through—every part that enters into the entire equipment. First, you get the standard WITTE Engine; second, you get the WITTE Special Tilting Saw Frame equipped with the highest quality 10-gauge circular cross cut saw made especially for this outfit.

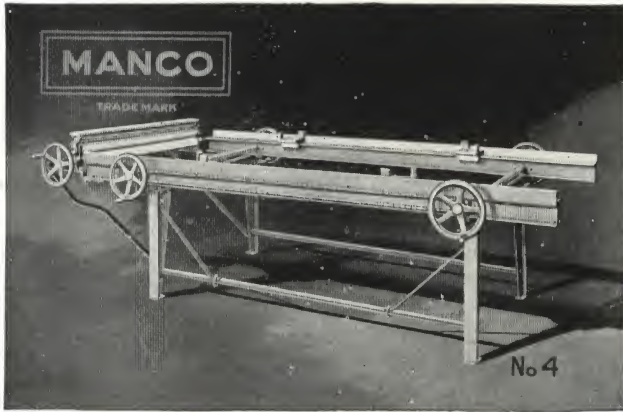
#### Highest Grade 10-Gauge Steel Saw



You will have no trouble with the belt coming off as the saw frame and skids holding the engine are a single unit.

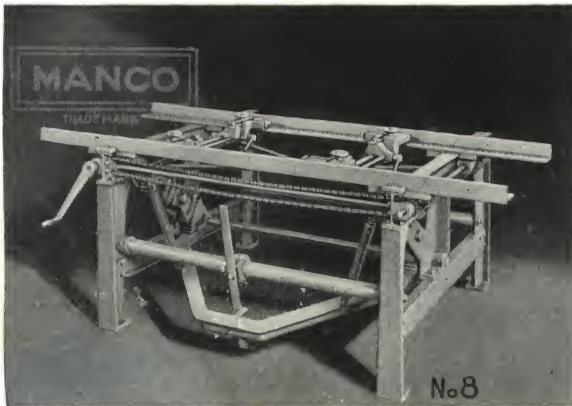
**POWERED WITH WITTE 3, 4, OR 6 H-P. LIFETIME ENGINE**

## “Manco” No. 4 Screen Door and Window Clamp



For Clamping Screen Door and Window Frames and other light work in a practical, workmanlike manner and to supply a need for a sturdy, substantial Machine, also permit of stretching Screen Wire-Cloth taut and smooth without strain on the wire strands. Wire-Cloth may be tacked on frame before removing from Clamp. The four large Hand-Wheels permit of convenient operation from either side.

## “Manco” No. 8 One and Two Way Squaring and Clamping Machine



For Clamping and Squaring (in one operation) Doors, Sash and Panels, ACCURATELY, RAPIDLY and at LESS COST.

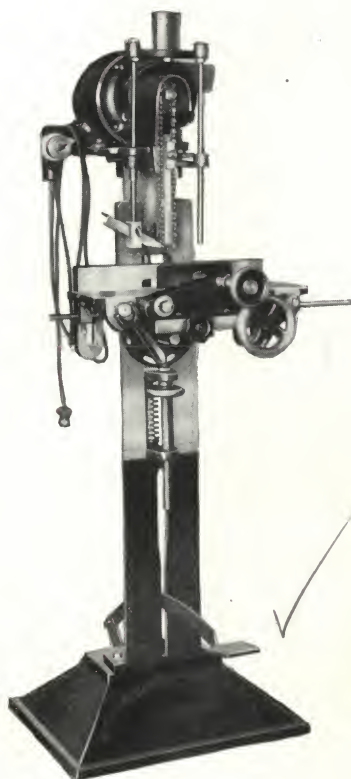
(Pin or Glue as you Clamp).

**Ask for Full Description.**

# WOODWORKERS

## Electric Chain Mortiser

### Foot Power-Ball Bearing Motor on Arbor



Plain or Compound Rack and Pinion Feed Table—cut shows Compound Table.

For quick, accurate work on light mortising—no boring, no core cleaning, no shock or jar.

This machine is recommended for Sash, Screens and General Mortising of a light nature and has many features of merit to facilitate work and economize time. The Chain Saw is the only mortiser which makes the full size mortise at a single cut. The frame is open form, giving easy access to every part. The table is either plain or compound and is provided with back rest. The compound table permits long or adjacent mortises to be made by a series of cuts without unclamping the material, with adjustable stop for depth of mortise. The feed is direct by foot pressure. Fan takes away chips as fast as formed and discharges them where desired. Chip breaker automatically prevents slivering where the chain emerges from the mortise. A wood throat piece in the table provides the same feature for under chipbreaking on through mortise. The machine is equipped with  $\frac{3}{8} \times 11\frac{1}{2}$ " chain bar and sprocket. Motor speed is 3600 r.p.m. Chain and bar have automatic oiling device which is necessary on high speed machine.

Height, 5  $\frac{1}{2}$  ft.; floor space, 30 sq. in.; weight, 400 lbs. Will take chains from  $\frac{1}{4}$ " to  $\frac{1}{2}$ " in width. Mortise to the center of 2  $\frac{7}{8}$ " maximum adjustment. Deepest mortise, 3  $\frac{1}{2}$ ". Longest mortise one cut, 2". Shortest mortise,  $\frac{3}{4}$ ". Will clamp up to 10" wide when table lowers all the way. Longitudinal motion of table without unclamping work, 5". Power,  $\frac{3}{4}$ -horse motor.



## CHAMPION Motorized Hollow Mortiser

### Specifications:

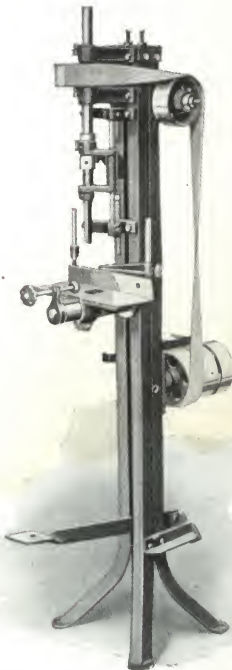
Length of table, metal.....	22½ in.
Length of wood table top.....	40 in.
Vertical travel of chisel.....	3¾ in.
Vertical adjustment of table under chisel.....	13¼ in.
End of chisel to table, maximum.....	13¼ in.
Center of chisel to fence, maximum.....	3¾ in.
Maximum capacity chisel.....	½ in.
Maximum boring bit.....	1 in.
Size of hole in spindle.....	½ in.
Speed of boring bit.....	3450 R. P. M.
Floor space over all.....	24 in x 40 in.
Height of machine.....	68 in.
Shipping wght. (by rail) approx.....	250 lbs.
Power, ball bearing electric motor.....	½ H. P.

Price, F. O. B. Chicago....\$190.00

Speed  
Accuracy  
Efficiency

No Belt  
No Gearing  
No Pulley

For Job  
Shops,  
Mills and  
Factories  
Doing Sash,  
Doors,  
Screens,  
Etc.



## No. 1 Simplex Upright Hollow Chisel Mortiser and Borer

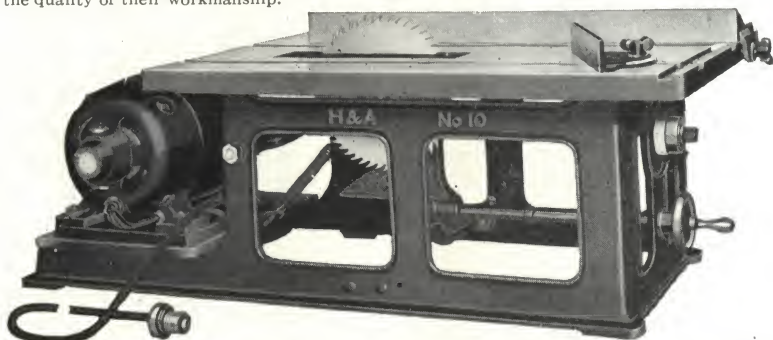
Chisel stroke.....	4½ inches
Clearance between table and chisel.....	24 inches
Capacity for mortising.....	¼ to ½ inch
Height over all.....	5 feet 6 inches
Tight and loose pulley speed.....	1200
Belt.....	2 inches wide
Shipping weight.....	175 pounds
Power required.....	¼ to ½ H. P.
Floor space.....	18 by 18
Price, F. O. B. Factory.....	\$75.00

## H & A Bench Type Motor Driven Woodworking Tools

Week after week and month after month these sturdy, heavy-duty machines go right on "sawing wood"—dependable, accurate, low in operating and upkeep costs.

Every machine is portable and operates from light socket power. That means that you can move the machines to the job instead of having to carry the job to the machine and then carry it away again. H & A equipment speeds up the work, saves valuable floor space, increases the efficiency of your workers and improves the quality of their workmanship.

**No. 10  
Rip  
Saw**



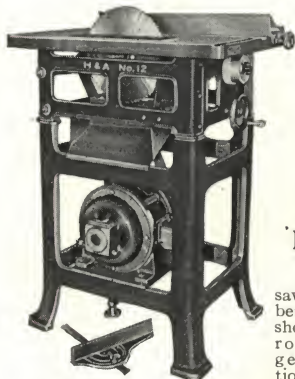
A large capacity machine that will handle wide material without sacrificing portability or reasonable cost. Capacity  $2\frac{1}{4}$ -inch material. Table  $18 \times 26$  inches, with two grooves; cuts right and left hand miters. Equipped with 8-inch blade. Tilting fence, dado heads or moulding cutters furnished as extra equipment.

**No. 6 Jointer**

Equipped with  $\frac{1}{3}$  H. P. or  $\frac{1}{2}$  H. P. Motor and 8-inch Saw

Will rip, cross-cut or miter material up to  $2\frac{1}{2}$ -in. thick with an 8-in. saw. Blade raises and lowers with the hand wheel. Regular machine will take a 6-in. dado head for grooves up to 1-in. wide and  $1\frac{1}{2}$ -in. deep. Saws are easily changed.

Table is  $15 \times 20$  inches, smooth and level. Maximum distance from saw to ripping fence is 8 inches.

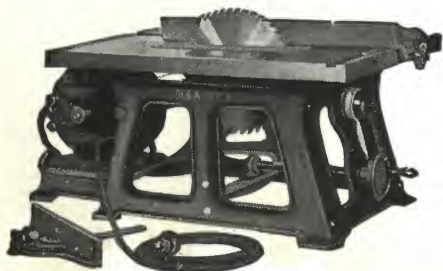


**No. 12  
Rip Saw**

A heavy-duty saw table for lumber yards, mills, shops, shipping rooms and for general production work.

With this machine it is possible to rip, miter or cross-cut material,  $3\frac{3}{4}$  inch thick by 12 inches wide, with 12-inch blade. Machine comes equipped with 10-inch blade, but any standard 12-inch blade can be used.

Size of table,  $20 \times 30$  inches of planed cast iron; rigid, non-tilting. Two H. P. motor is standard equipment; snap switch control.



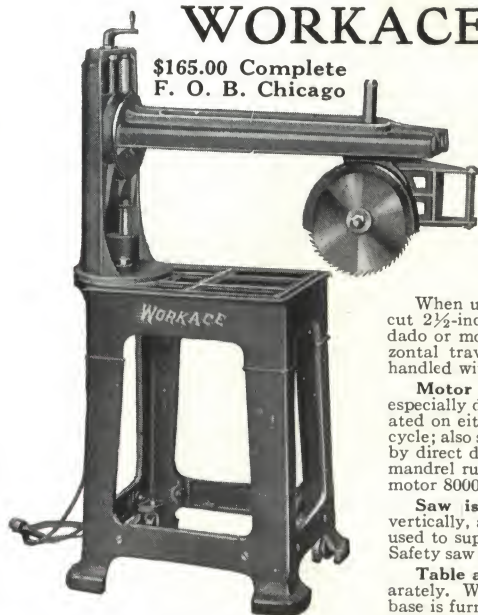
**No. 8 Rip Saw**

Equipped with  $\frac{1}{2}$  H. P. motor and 6-inch high speed blades. Will eliminate hand planing and give a surface smooth as a sand finish. Tables raise and lower by handwheels for adjusting depth of cut. A high-grade, heavy-duty machine for production work. Induction-repulsion type motor for A. C. Compound wound motor for D. C. Tables are 8 inches wide and 33 inches long, over all. Surfaced smooth and level. Aluminum guard over cutters furnished regular. Equipped with patented safety cylinder head.



## WORKACE RADIAL SAW

\$165.00 Complete  
F. O. B. Chicago



### DIRECT MOTOR DRIVEN Handles All Cutting Operations

The Workace Radial Saw handles all cutting operations at any angle, including compound miters, cut-off, ripping, dadoing, tenoning, routing, shaping, fluting, boring and sanding—practically every operation done in the woodworking plant.

The direct - motor - driven unit travels through the stock—stock lies flat on the table. Quickly adjusted; easily portable; an accurate, sturdy, powerful machine designed for long and satisfactory service.

When using an 8-inch blade the Workace Radial Saw will cut 2½-inch stock; with a 9-inch blade, 3-inch stock; with dado or moulding heads will cut 1 inch wide. Saw has horizontal travel of 19½ inches; stock of any length may be handled with proper work table arrangement.

**Motor Drive Unit** is a ¾ h. p. G. E. universal motor, especially designed for the Workace Radial Saw; can be operated on either A. C. or D. C., 110 volts, 25, 30, 40, 50 or 60 cycle; also supplied for 220 volts. Maximum power is obtained by direct drive, steel spur gears reduction 2 to 1. Gears and mandrel run in a bath of graphite grease. Normal speed of motor 8000 r. p. m.; saw speed, 4000 r. p. m.

**Saw is adjustable** to any position horizontally and vertically, and may be locked in position; power unit may be used to supply power for another machine, such as a jointer. Safety saw guard covers unused portion of saw.

**Table and legs** are cast iron and may be purchased separately. When saw is furnished without table and legs, a ring base is furnished to be mounted on a wood table or bench of your own construction.

Workace Radial Saw, complete with table and legs. Shipping weight 363 lbs. Price. . . . \$165.00

Workace Radial Saw without table and legs. Shipping weight, 180 lbs. Price. . . . . \$140.00

## WORKACE 4" PLANER—DIRECT MOTOR DRIVE

**Fast, Accurate, Economical; A Money Saver for Woodworking Plants**

The Workace 4-inch Planer will save time, money and material wherever there is any planing operation to be done on stock 4 inches wide or less. It takes power from any electric light or power circuit, and can be taken right to the work, as it weighs only 52 lbs.

Maximum efficiency is obtained by the directly connected ¼ H. P. G. E. motor, which maintains a uniform speed of 3600 r. p. m. at the cutterhead, whether working on deep or shallow cuts. Cutterhead is machined from high grade steel and contains three knives, giving approximately 11,000 knife cuts per minute.

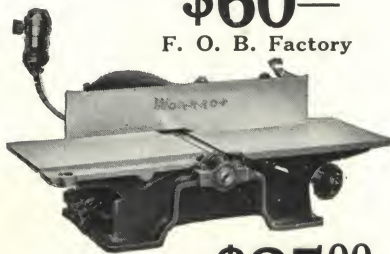
Ample capacity and power to joint stock 4 ins. wide with a maximum depth of ¼ in. Tables are cast iron finished to a true surface accurate to .005 inches. Both table mounted on machined slanting ways for rigidity and fine adjustment; rabbetting ledge on rear table. Both tables raised or lowered by hand wheels. Fence is of smooth cold drawn steel bar, and is adjustable to any angle up to 45°. Cutterhead and motor armature revolve on four easily lubricated bronze bearings.

Aluminum flap guard supplied as extra equipment if desired or required by law.

Workace 4-Inch Planer, with 7/8 H. P. direct connected motor; shipping weight, 75 lbs. Price. . . . . \$60.00

**\$60<sup>00</sup>**

F. O. B. Factory



**\$25<sup>00</sup>**

**WITHOUT MOTOR**

**Sold Also Without Motor for Belt Drive**

The Workace 4-Inch Planer is sold also without motor, equipped with a V-groove pulley for belt drive. The same in all other respects as the direct-motor-drive Workace 4-Inch Planer described at the left.

Workace 4-Inch Planer with 2-inch V-groove pulley for V-belt drive; shipping wt., 55 lbs. Price. . . . . \$25.00

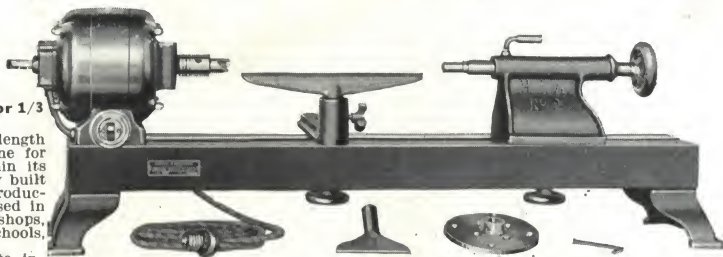


## No. 2 Wood Lathes

Equipped with 1/4 or 1/3 H. P. Motor

Furnished with any length bed. An ideal machine for all wood turning within its capacity. It is sturdily built and will stand up to production work. Can be used in pattern rooms, cabinet shops, furniture factories, schools, etc.

Centers and faceplate included. Plugs into the lamp socket and is ready to operate. Has plenty of power and runs quietly and smoothly. Heavy metal bed rigidly built.

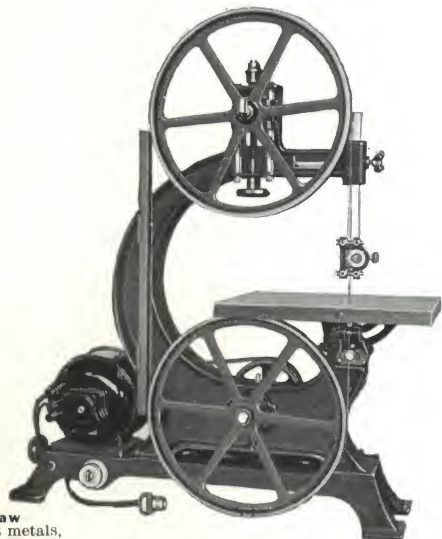
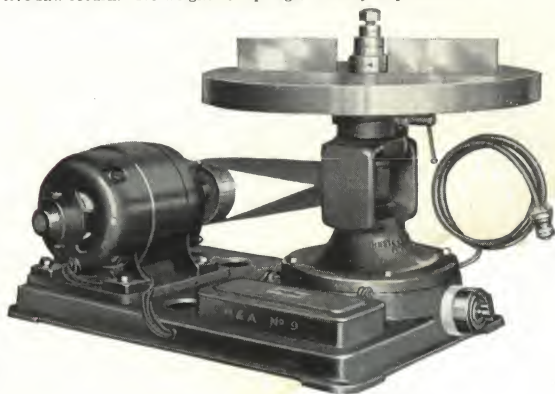


## No. 5 Cut-off Saw

Equipped with a 1/2 H. P. Motor and an 8-Inch Saw

An ideal machine for cutting lumber, fibre, leather, soft metals, bakelite, copper and brass rods, tubing, etc. Will give a smooth cut that is perfectly square. Used in many large industrial plants for cutting up material, also by carpenters, contractors, lumber yards, etc.

Entirely self-contained and portable. Easy to operate. Positive saw return. No weights or springs. Plenty of power.



## No. 1 Band Saw

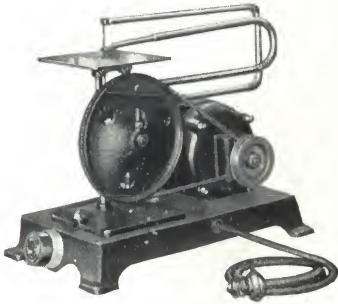
Equipped with either 1/3 or 1/2 H. P. motor. 2 Blades.

Hundreds are in use in industrial plants. Used in pattern rooms, cabinet shops, furniture factories, schools, etc.

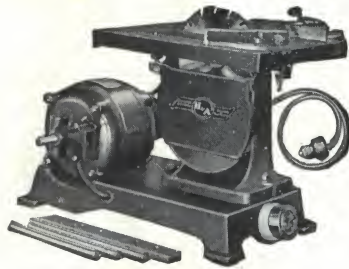
Will take blades from 3/4" to 1 1/2" wide. Table is 12"x14" surfaced smooth and level. Tilts up to full 45 degrees. Wheels are turned and balanced. Covered with high grade rubber bands. Fitted with Phosphor bronze bearings. Ball bearing saw guide.

## No. 9 Shaper

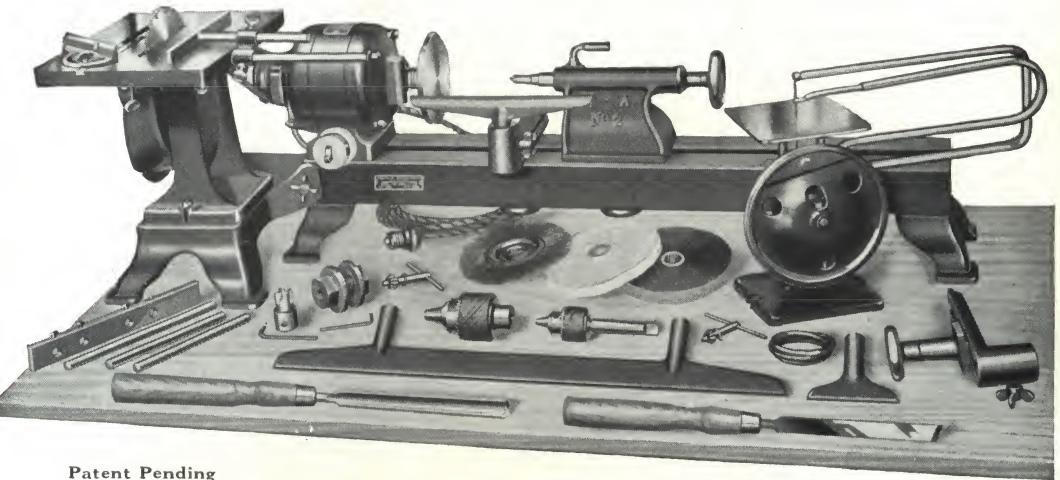
A convenient bench type machine for cabinet and woodworking shops. Can be used for making screen mouldings, quarter round, half round, picture mouldings, for forming the edges of table tops, bases, doors and dozens of other jobs. Entire ball bearing spindle assembly may be removed for easy adjustments and oiling. On work requiring different knife "set-ups," two or more spindles can be used on one machine; quickly interchangeable. Uses knives up to 2 1/4" wide.

**No. 44 Scroll Saw**

You need only one base and motor for both Rip Saw and Scroll Saw because they are interchangeable and you can switch from one to the other in about a minute. These are the same saws that are furnished with the Home Craftshop—for ripping, cross cutting, grooving, mitering, rabbetting, dado-

**No. 7 Rip Saw**

ing, beveling and curved sawing. Motor has double spindle which can be fitted with grinding wheel as extra equipment. It's a wonderfully useful and interesting little outfit and very reasonable in cost. Write for special combination price.



Patent Pending

## H. & A. Unit Plan Craftshop

Here's a home workshop outfit that will win the admiration of the skilled worker who knows and uses good tools—not a plaything, but a thoroughly useful and practical equipment with which you can do the finest of cabinet work if you have the skill and inclination.

Yet it is a simple and practical equipment for the use of the man who is not skilled in the use of tools. The boy of high school age, who has had a little manual training experience; the desk worker who likes to vary his day by using his hands; the man who finds his pleasure in making useful things of wood for the home, garden and lawn; the man

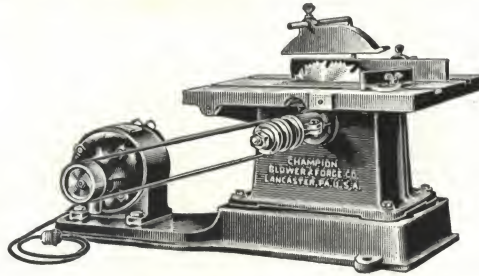
with a little spare time that he can turn into profit by making salable things—to all of these, the H & A Home Craftshop will prove useful, entertaining and profitable.

Buy it on the H & A "Unit Plan," if you wish, starting with the lathe—the same sturdy lathe that is used in hundreds of factories and woodworking shops—and add the other items of equipment as you need or can afford them.

We shall be glad to send you, on request, a special folder which fully describes and illustrates all of the units of the Home Craftshop, and gives you prices.



## Champion Bench Saws—Tilting Tables



No. 8 ELECTRIC BENCH SAW TABLE

Champion Bench Saws furnish excellent means to rip, cross-cut, miter or groove without a heavy investment in equipment. They are easy to operate and are able to do over 95% of the average work at a large saving in time. **Practical machine for pattern shop, contractors, shipping room and for general wood-work and soft metal work.** The price is so reasonable any handy-man can afford to buy one as it will pay for itself many times in the shop and in the home.

**TABLE**—Cast Iron, Planed Smooth and Accurate; all grooves machined true to hold guides accurately. No. 8 and No. 10 fitted with hardwood throat box which can be removed for dadoing. Table is well ribbed on the bottom, rigidly hinged at the back; front edge raised or lowered for grooving, or lifted back for changing the saw blade. **Table tilts 45 degrees to right and 10 degrees to left.**

**FRAME**—Cast iron, rigidly constructed and braced to withstand the hardest service. To hold the table in place, to cut various depths, a threaded bolt is raised to its desired position, insuring the table being held in positive position to cut desired depths. There is an opening at the bottom of the frame to be placed over a hole in the bench and an opening in the side of the frame to remove the saw dust.

**BEARINGS**—On the No. 6 are Split Babbitted Bearings with Ring Oiling, insuring positive lubrication. **On the No. 8 and No. 10 are Annular Ball Bearings**, insuring easy running and the most up-to-date construction possible.

No. 6 and 8 Spindles are threaded on the pulley end to take a sand disc, grinder or buffing wheel. Saw Guard furnished without extra charge on all sizes. The drive pulleys are crowned and turned so that the belt will be held securely in position.

**GAUGES**—The ripping fence is surfaced smooth and square with the table. Cut-off or miter gauge slides in machined groove and is adjustable both ways to 45 degrees.

Made in Three Sizes.

### SPECIFICATIONS

No. 6	
Table.....	10' x 13'
Diameter of Saw.....	6'
Hole in Saw.....	3/4"
Maximum Depth of Saw.....	1 1/4"
Maximum Diam. Dado Head.....	4' diam. x 11/16"
Diam. of Pulley.....	1 1/2"
Width of Belt.....	1 1/4"
Speed of Saw.....	6000 R. P. M.
Height to Table Top.....	7"
Size of Base.....	6' x 9 3/4"
Shaft Diameter.....	5/8"
Table Less Saw.....	\$19.75
Weight.....	50 lbs.
Table With 1/4 H. P. Motor, 110Volt A.C....	\$44.00
Weight.....	100 lbs.
Steel Floor Stand, Extra..	\$8.00

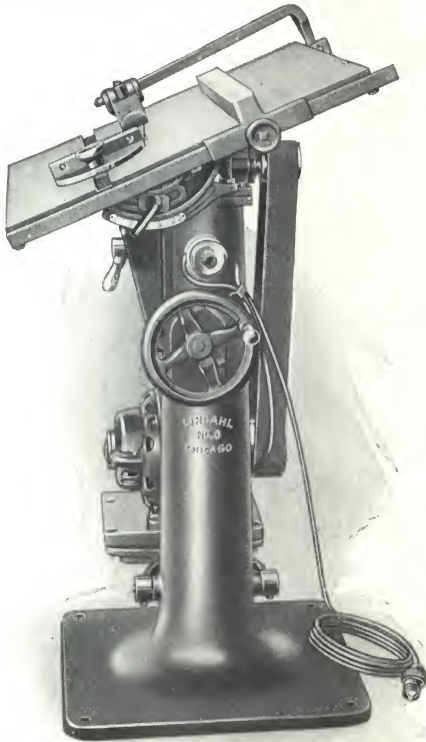
No. 8	
Table.....	12' x 16'
Diameter of Saw.....	8'
Hole in Saw.....	3/4"
Maximum Depth of Saw.....	2"
Maximum Diam. Dado Head.....	6' diam. x 3/4"
Diameter of Pulley.....	1 1/2"
Width of Belt.....	1 1/4"
Speed of Saw.....	4500 R. P. M.
Height to Table Top.....	8"
Size of Base.....	8' x 12'
Shaft Diameter.....	3/4"
Table Less Saw.....	\$27.50
Weight.....	65 lbs.
Table With 1/4 H. P. Motor, 110Volt A.C....	\$52.00
Weight.....	125 lbs.
Table With 1/2 H. P. Motor, 110Volt A.C....	\$80.00
Weight.....	175 lbs.
Steel Floor Stand, Extra..	\$12.00

No. 10	
Table.....	20' x 26'
Diameter of Saw.....	10'
Hole in Saw.....	3/4"
Maximum Depth of Saw.....	2 3/4"
Maximum Diam. Dado Head.....	8' diam. x 1"
Diameter of Pulley.....	2"
Width of Belt.....	2"
Speed of Saw.....	3600 R. P. M.
Height to Table Top.....	11"
Size of Base.....	12' x 16'
Shaft Diameter.....	1"
Table Less Saw.....	\$60.00
Weight.....	185 lbs.
Table With 1/2 H. P. Motor, 110Volt A.C....	\$125.00
Weight.....	320 lbs.
Table With 1 H. P. Motor, 110Volt A.C....	\$150.00
Weight.....	370 lbs.
Steel Floor Stand, Extra..	\$15.00

### EXTRAS

	No. 6	No. 8	No. 10
Steel Floor Stand with Motor Bracket.....	\$12.00	\$15.00	\$20.00
Cast Motor Base only.....	9.00	10.00	12.00
Direct Current or 32 Volt Motor, extra.....	7.00	7.00	7.00
220 Volt A. C. or 50 Cycle to 25 Cycle, extra.....	5.00	5.00	5.00
External Saw Guide.....	2.00	3.00	4.00
Sanding Disc.....	5.25	6.25	8.00
Combination Rip and Cross-Cut Saw.....	3.30	4.40	5.50
Emery Wheel.....	2.35	3.00	4.00
Wire Scratch Wheel.....	1.65	2.50	4.00
Buffing Wheel.....	2.00	3.00	4.00
1/2" Capacity Chuck.....	6.00	6.00	6.00





## Lindahl Ball Bearing Motor Driven Tilting Saw Table

### SPECIFICATIONS

$\frac{1}{2}$ -H. P. Ball Bearing Motor, either A. C. or D. C., operating from lamp socket.

Size of Table, 22"x26".

Table can be adjusted to any angle up to 45 degrees, and can be raised and lowered to cut any depth to  $1\frac{7}{8}$ ".

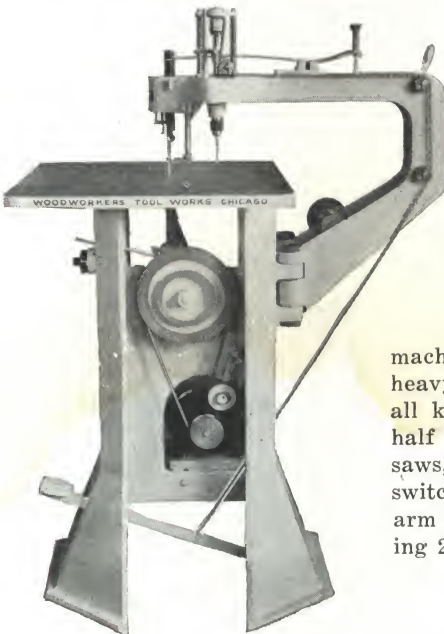
Height to top of table, 35".

Arbor is ball bearing, to take 8" saw with  $\frac{3}{4}$ " hole.

Motor sets on hinged bracket so belt can be tightened when necessary.

Regular equipment includes one rip and one cross-cut gauge, guard, motor, cord and belt. Saws are not included in regular equipment.

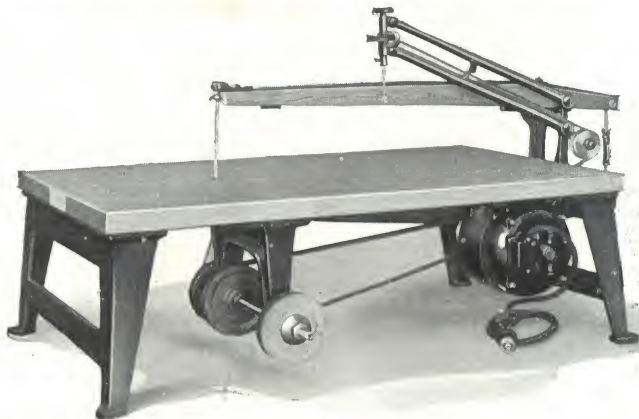
Weight, 300 lbs.



## Multiform No. 5 Electric Scroll Saw With Boring Attachment

Die makers, toy makers and other woodworkers will find our No. 5 machine a high grade accurate tool. The machine sells for about half the price of heavy clumsy machines and yet it will handle all kinds of work. Regularly furnished with half horse motor, one dozen assorted scroll saws, three drills, lamp socket cord and switch—table 24"x24" distance from saw to arm 22", also made with larger arm measuring 27". Weight, 640 lbs.

## Barnes Bench Electric Scroll Saw



**Price \$57.50**

**Boring Attachment  
\$5.00 Extra**

**F. O. B. Rockford**

Introducing a Scroll Saw of unusual merit. Built on liberal lines to take care of the Heavy Work with Remarkable Ease and Speed and still retaining the Sensitive Qualities for Fine Fret Work.

### Dimensions

Swing around blade under arm, 24 inches.  
Table is of hard seasoned maple, 34 in.  
long, 20½ in. wide.  
Height of table, 11 inches.  
¾ Horse Power running at 1750 R. P. M.  
Length of saw blade, 7 inches.  
Weight, including motor, 100 lbs.  
Boxed for shipment, 160 lbs.  
Dimensions of box ready for shipment,  
40"x25"x5".

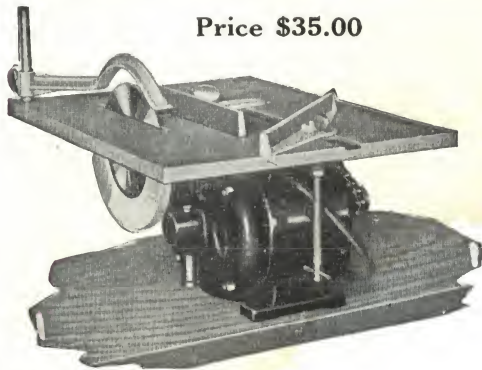
### Equipment

1 Drill Bit, 3/16" diameter with Boring Attachment.  
1 dozen assorted Scroll Saw Blades.  
¾ Horse Power Motor, single phase, any current characteristics.  
One 4x3" fast cutting emery wheel.  
Lamp cord and socket.  
Always give current characteristics when ordering.

**CAPACITY**—Will saw 2-inch pine board at the rate of 2½ feet per minute; other wood in proportion. Saw runs at 900 strokes per minute and therefore leaves the work as smooth as possible.

A practical tool for the carpenter, contractor, cabinet maker, pattern maker, radio worker, furniture manufacture, and manual training schools.

**Price \$35.00**



## CHAMPION Portable Electric Saw

**For Ripping, Cross-cutting and  
Mitering Table 13½"x16"**

Saw 6" diameter cuts through 1½" in thickness. Motor A. C. 110 volts, ¼ horse power, weighs 44 pounds. Price \$35.00 complete with ripping gauge, bevel-cross-cut gauge, saw guard and lamp socket cord.



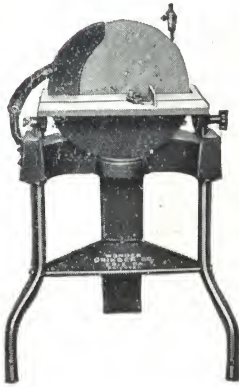
## Wonder Disc Grinder and Sander

**\$194<sup>00</sup>**

16" Size; F.O.B. Chicago

**\$152<sup>00</sup>**

12" Size; F. O. B. Chicago  
Direct Motor Drive



Put a Wonder Disc Sander in your shop and say good-bye to the uncertainty and heavy expense of hand sanding and finishing, grinding of tools, dies, metal patterns, etc.

One-half H. P. G. E. motor is directly connected to disc shaft, bolted to frame in such a way as to insure rigidity and absence of vibration. Tumbler switch located at right side of table.

Table is 7½x14½ inches, cast iron, and tilts to 45° angle, up or down. Table height 37 inches; large knurled knob locks table at any angle. Two cast iron discs standard equipment with every Wonder Disc Sander, using any kind of sheet abrasive.

Wonder patent dust eliminator complies with dust-elimination laws of all states; positive friction drive fan dispels dust through hollow rear leg of machine. Cast iron guard covers left half of disc at all times.

**Wonder Disc Grinder and Sander, 16 in. size; shipping weight, 290 lbs. Price.....\$194.00**

**Wonder Disc Grinder and Sander, 12-inch size; shipping weight, 190 lbs. Price.....\$152.00**

## Wonder Spindle Oscillating Grinder and Sander

**\$149<sup>00</sup>**

F. O. B. Chicago

**Direct Motor Drive**

Best machine on the market for all kinds of circular grinding on either wood or metal. Ruggedly built, simple in operation and accurate.

20½-inch round cast iron table—ground to true surface tilts 45° either way; knurled knob locks table at any angle. ½ H. P. G. E. motor directly connected to

spindle; motor entirely inclosed in base of machine; oscillation controlled by convenient lever, can be started or stopped while machine is running. Three spindles supplied as standard equipment.

**Wonder Spindle Oscillating Sander and Grinder; shipping weight, 300 lbs. Price.....\$194.00**



## No. 16 Wallace 16-inch Bandsaw

**\$255<sup>00</sup>**

F. O. B. Chicago

(With 110 or 220 D. C. or A. C. 50 or 60 cycle motor. Other ratings quoted special on request.)

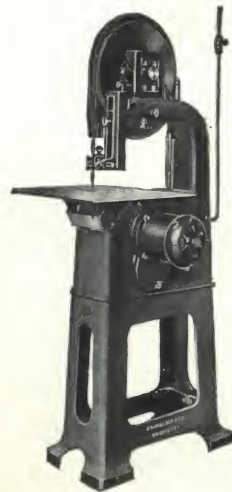
### Direct Motor Drive—Built for Accuracy and Speed on Large or Small Work

The Wallace 16-inch Bandsaw represents the highest type of modern woodworking machinery, built for production use in cabinet rooms, new design rooms, special order departments, and pattern shops, to handle all bandsaw operations from the finest of precision cuts on small stock up to 8 inches thick glued-up maple stock.

The 19x21-inch table is heavy gauge steel plate, ground to an absolutely flat and true surface, and adjustable from -5° to -45°. Proper tension on the 9-foot blade is obtained by raising or lowering the upper wheel. 16-inch disc steel wheels; ball bearing guides above and below table decrease friction and add to life of blade. Guard covers blade during its entire travel except at cutting point.

Every revolving part dynamically balanced to eliminate vibration. Bandsaw comes fully equipped with ½ H. P. motor for single phase or direct current. Special 1 H. P. for single and three-phase current. Toggle switch located on motor. 10-foot cable and plug included.

**No. 16 Wallace 16-inch Bandsaw. Shipping weight, 500 lbs. Height over all, 5 ft. 9 in. Price.....\$255.00**





## Peerless Flexible Belt Sander

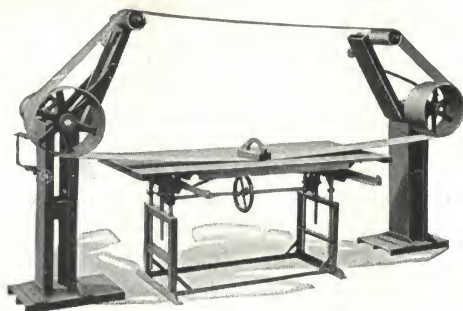
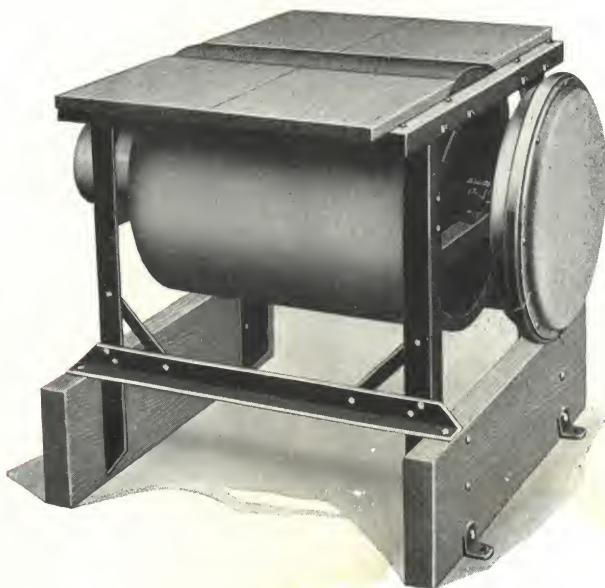


Table 32" high, adjust to 42"; 30" wide, 72" long; ball-bearing rollers on table. Main belt pulleys 16"x6", face lined with rubbers; tight and loose pulleys, 10"x4"; 350 R. P. M. Shipping weight, 1000 pounds. Three horse power.

F. O. B. Factory.....\$250.00

## Drum and Disc Sander



Drum 24" long, 20" diameter. Table 36" long, 24" wide. Disc 18" diameter; tight and loose pulleys, 10"x4", 350 R. P. M. Two horse power.

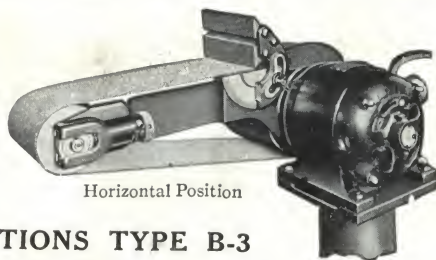
Price F. O. B. factory.....\$75.00

**ASK FOR CIRCULARS**

## SYRACUSE Belt Sander and Grinder



Odd cycle motors will reduce speed of machine accordingly. Speed given is for 60 cycle or D. C. motors



Horizontal Position

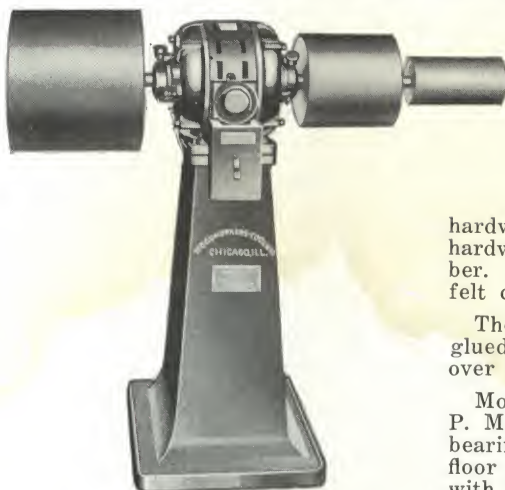
### SPECIFICATIONS TYPE B-3

Grinding bed, 10 1/2"x23"  
Abrasive belt, 10"x70 1/2"  
Driving pulley, 7 1/2" diameter  
Motor speed, 1,725 r. p. m.  
Belt speed, 3,400 ft. p. m.  
Table, 9"x16", (12"x20" can be furnished) tilts 45° down, 15° up  
Height from floor, 37"  
Height vertical, 59"  
Base, 22" diameter  
Net weight, 375 pounds  
Crated weight, 500 pounds

### EQUIPMENT INCLUDES

1 1/2 H. P. motor and switch  
(2 H. P. motor can be furnished)  
1 pedestal and base  
1 belt for grinding metal  
1 belt for sanding wood  
Angle gauge  
Dust guards  
Alemite connections and gun

## Woodworkers' Cone Sander MOTORIZED, BALL BEARING

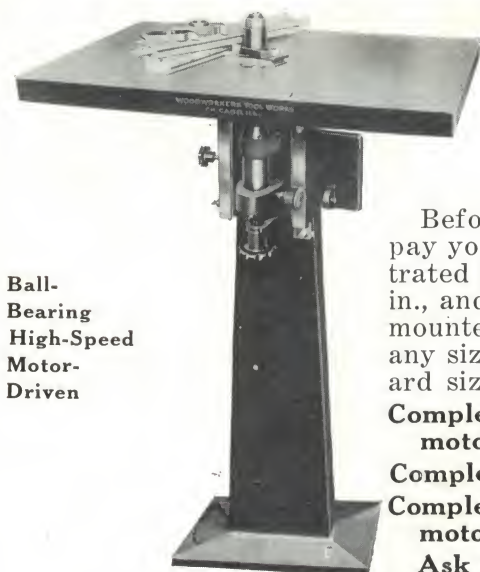


This machine was designed for sanding flat or bent work for chair, furniture and cabinet shops. The frame is a cored column cast in one piece with broad foot flanges, making it perfectly rigid.

Drums are of following sizes, one 14" diameter 13" face hardwood, one 11" diameter 7" face hardwood, one 4" diameter 8" face rubber. These are perfectly balanced and felt covered.

The sandpaper is cut to template, glued together with cloth and sipped over drums which are slightly tapered.

Motor is a one horse power, 1200 R. P. M., 220 volt, 60 cycle, 3-phase ball bearing. Weight 260 lbs., height 41", floor space 40"x14". Price complete with switch, F. O. B. Chicago, \$200.00



Ball-  
Bearing  
High-Speed  
Motor-  
Driven

## New Champion Shaper

Before you buy that new shaper it will pay you to investigate the machine illustrated here. The table measures 21x30-in., and is 37 inches high. All-iron frame mounted on round base. Spindles made any size from  $\frac{5}{8}$ -in. to 1 $\frac{1}{8}$ -in.; is standard size. Spindle speed of 7000-r. p. m.

Complete with  $\frac{3}{4}$ -h. p., 110-volt  
motor .....\$200

Complete with 1 h. p. motor.....\$225

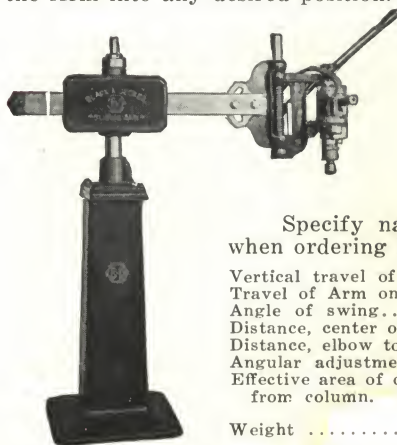
Complete with 2-h. p., 220-volt  
motor .....\$250

Ask for Full Particulars.

## Black and Decker

### RADIAL ARM

The Radial Arm is furnished with heavy brackets that bolt or clamp to wall or post, and these brackets support a large steel vertical column which carries the Arm. The Arm has a vertical adjustment up and down the column and the weight is carried by a ball thrust bearing which makes it very easy to swing the Arm into any desired position.



The Radial Arm is particularly adaptable to chain production methods, as it relieves the operator of carrying the weight of the electric tool, takes all the torque of the electric tool from the operator, and has an operating range so wide as to enable the operator to either get ahead of the chain production or make up any loss in time due to emergencies.

Specify name plate date of electric tool to be used when ordering Radial Arm.

Vertical travel of bracket.....	3 $\frac{3}{4}$ "
Travel of Arm on column.....	24"
Angle of swing.....	120°
Distance, center of column to elbow.....	22"
Distance, elbow to spindle of electric tool.....	14"
Angular adjustment electric tool bracket.....	245°
Effective area of operation of Arm is within radii from 19" to 36" from column.	
Weight .....	180 lbs.

In ordering, be sure to specify type and size of electric tool to be used so that the right adapter will be supplied on bracket.



## Black & Decker Universal Sander

7" Discs, 4500 R. P. M. Weight 9½ lbs.

Price .....\$68.00

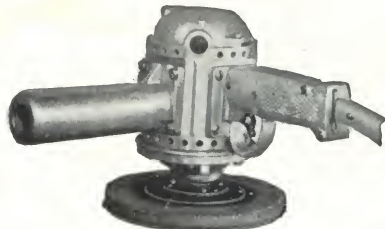
9" Discs, 3000 R. P. M. Weight 12½ lbs.

Price ..... 88.00

Extra Sanding Discs, 7" size, dozen, \$3.60

Extra Sanding Discs, 9" size, dozen, \$4.80

**For Sanding, Gridding, Cleaning, Smoothing, Rubbing, Polishing**



The carpenter and cabinet maker also find the Electric Sander to be the quickest and most satisfactory means of smoothing up carpentry and cabinet work. In the building of furniture the Electric Sander can be put to many uses. There is practically no end to the many applications to which the electric Sander may be put; fender repair work, cleaning boat hulls for painting, are a few and it may be readily seen that the Electric Sander is a means of time and money saving on any job where abrasive paper must be used.

### Motor Driven—Pneumatic Sanding Drum



Single phase motor with cord, and switch. Double end extension shaft, with six inch by one-half inch emery wheel on one end. One pneumatic drum two by six inches.

Complete, Ready to Operate

**\$35<sup>00</sup>**

## P. C. Take About Sander

General Electric Universal A. C. and D. C. Motor  
(Any voltage from 32 to 250 inclusive can be furnished.)

Belt speed 1250 feet p. m., Free Speed

Belt Size 3"x24"

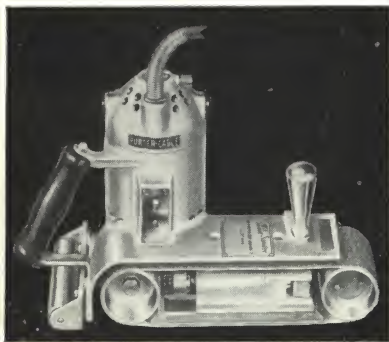
Diameter of pulleys, 2½"

Weight, 14 lbs.

Size, 6" wide, 13½" long, 8½" high.

Equipment includes 6 belts, felt covered shoe and 15' of rubber covered conductor cable with unbreakable duplex plug.

**IMPORTANT:** When ordering, state exact voltage of your line as these motors will not carry more than ten per cent voltage variation. Having this information, we can probably meet your requirements. 110 volt sent unless otherwise specified.



**Guarantee:** Without cost we will repair and make any necessary replacement of parts on any of these machines that have not been out of our hands for more than three months and do not show evident signs of abuse, if the owner pays the transportation charges.

## The "Lindy" Assembly—



The most efficient flexible shaft assembly giving portable rotary motion with three speeds offered to the trade in many years, designed and built exclusively by the Stow Manufacturing Co., Inc. the inventors and foremost builders of flexible shafting for industrial purposes.

The "Lindy" is built as shown in the illustration, with clamp spindle, extension cord and plug, five-foot flexible shaft, full  $\frac{1}{4}$  H. P., 110 volts, 60 cycles, single phase motor to operate from a lighting line. Tool twenty-five inches high over all. Speeds 900, 1800, 3600 R. P. M.

Any Voltage or Frequency may be had.

Price complete, f. o. b. Binghamton, New York.....\$78.00

### Attachments:—

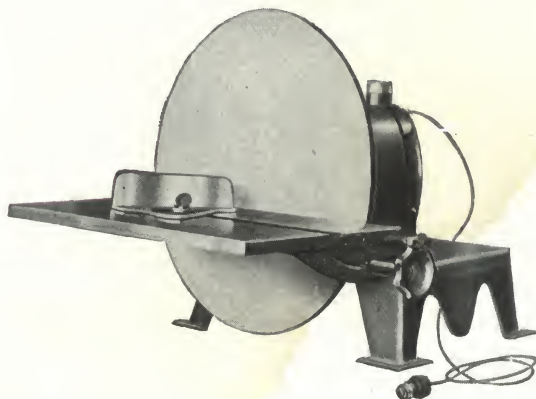
4x1" Wire Scratch Brush.....	\$ 2.00
6x1" Buff Wheel .....	1.00
Handless clamp spindle .....	3.00
Sandpaper disc clamp spindle.....	2.50
$\frac{1}{4}$ " Chuck .....	5.50
No. 0 Sanding Wheel .....	18.50
Offset angle head .....	25.00
6x1" Grinding Wheel .....	2.25

Sanding discs are  $9\frac{1}{8}$ "x $\frac{7}{8}$ ". Prices on request for Grit and Grade.

## The Majek Portable Disc Sander

Just the Machine for the Craftsman who wants to turn out perfect work.

Indispensable for making true miter joints, smoothing, sizing and dressing finished work.



Equipped with 1-4 horse-power motor.

14-inch disc.

Table tilts 45 degrees down, 15 dgs. up.

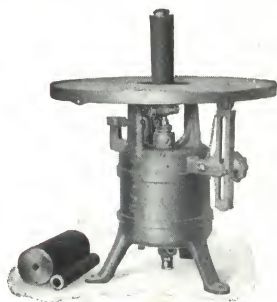
Slotted to take the adjustable miter gauge.

Net weight 62 lbs., shipping weight 80 lbs.

Fully equipped with switch-cord and plug ready to attach to light socket.

**Price \$75.00**





NEW  
IMPROVED **The EMMERT** MOTOR  
DRIVEN

## Oscillating Spindle Sander

### For Internal Use

The Emmert Oscillating Spindle Sander is designed to CUT THE COST on all Circular Work, Cam Patterns, Gear Cover Work and irregular work of every description.

About 90% of the irregular work on all Wood Patterns can be done in ONE-TENTH the time required for hand gouging. Especially useful on all Small Core Box Patterns, as it eliminates the necessity of laying the work out on both sides of the piece, and does away with all hand work.

### Distinctive Features

Oscillating movement of spindle eliminates all sand paper marks, assuring a neatly finished job.

Utilizes every piece of sand paper to the full limit—the saving on this item alone makes the machine a profitable investment.

Table tilts one way 25 degrees, the other way 20 degrees, to allow for ample draft on patterns.

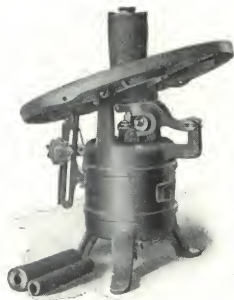
Angles are secured quickly by means of a graduated scale placed in front position on machine.

Rolls may be removed and replaced instantly with another size.

Light, portable, may be used in any part of shop desired.

$\frac{3}{4}$  h. p. motor, enclosed type, protected from dust, motor and spindle speeds 1725 r. p. m.

Furnished complete with three rolls and cord for attaching to light socket.



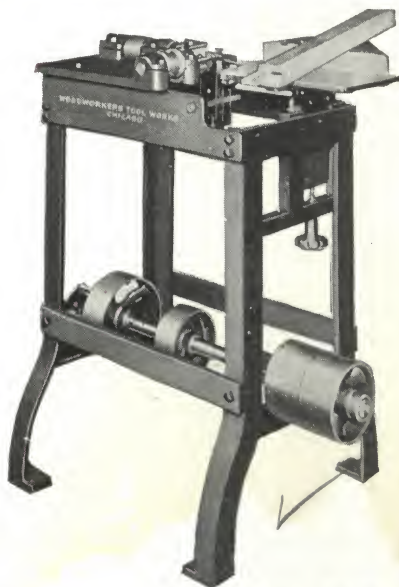
Price \$80.00

## CHAMPION SASH RELISHER

Meets Every Demand for an Accurate,  
Handy Machine

It works thru cutterhead and boring bits at top, relishing tenon and boring shoulder to accurately fit stile.

Champion Tools feature exclusive improvements that make them better.



## CHAMPION PLOW AND BORE MACHINE

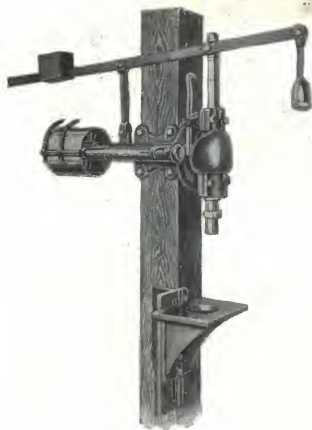
Plows and Bores Sash Stiles Faster, Easier, and Cheaper. Attached to rear of Sash Sticker and driven from shaft of Sticker.

Write for Catalog of Complete Line





## Champion Post Borer



This machine has tight and loose pulley,  $3\frac{1}{4} \times 7$ -in., which should run about 600 r. p. m. It is equipped with belt shifter, shown on side, and an adjustable stop for depth of hole. Also has adjustable counter balance on lever. The mitre gears are enclosed in a gear shield. Distance from post to center of spindle is eight inches. The spindle has a vertical travel of seven inches. The spindle is bored to take tools with a straight shank  $\frac{1}{2}$ -in. in diameter. Shipping weight (crated) about 135 pounds.

### PRICES:

Post Borer, hand feed.....	\$48.00
Foot Treadle .....	12.00
Adjustable table .....	18.00
Plain table .....	9.50

## No. 329 Bench Borer



**BORER 329**

This is a very convenient machine for general boring. It can be set on a bench or any convenient place and takes up very little room.

This spindle is  $1\frac{3}{8}$ " diameter, has a travel of 6" by foot lever, with stop gauge to regulate the depth. Centre of spindle to base  $5\frac{1}{2}$ ". Takes bits with  $\frac{1}{2}$ " straight shank.

Pulley 5"x5" should make 2000 R.P.M. Cubic contents, 3 feet. Horse Power 1.

**PRICE F. O. B. Chicago .....\$65.00**

## Champion Chucking Arbor

For making round tenons of any ordinary size or length.

The arbor is of steel and is threaded at the end to receive the cutter head. The bearings are of fine babbitt metal and are carefully scraped to the journals. The Cutter Heads are usually furnished with two knives. A Stop Rod is provided in each head to regulate the depth of the cut, which is adjustable by means of the set screws shown. The Stick Holder is accurately aligned with the arbor, and it can be adjusted to stock of various sizes.

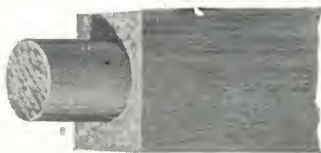
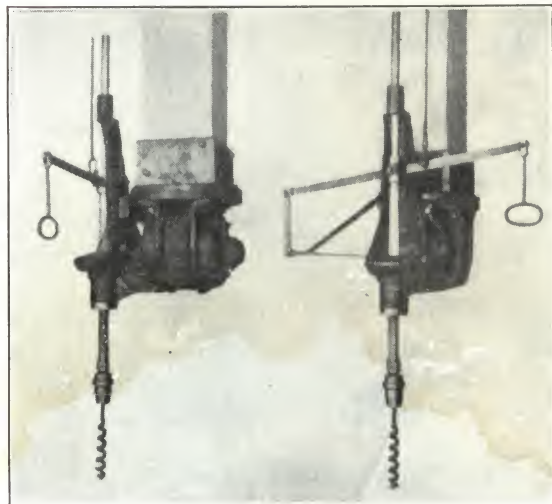


Figure	Style	Size of Pulley	Speed	Horse-power	Weight, Lbs.	Boxed for Export	
						Weight, Lbs.	Cu. Ft.
10251	Arbor and Frame	4 in. x 4 1/2 in.	3600	1 to 5	46	100	2

Prices, Arbor and Stand.....\$40.00  
Heads, any size up to 1 1/4 inches..... 22.50

## "Champion" Electric Suspension Post Borer



Speed of 1,800-r. p.m. will take care of 95% of boring operations.

Direct motor drive, 1 h. p. motor, 1800-r. p. m., with steel hardened worm bevel gears.

A low cost investment for occasional boring jobs or for production boring. The "Champion" Electric Suspension Post Borer is one of the handiest machines ever placed on the market. Every shop has some boring to be done, and this machine placed at the most convenient point will handle it speedily and efficiently. Compact, sturdily built, it is ever ready for any boring job that comes along.

The spindle travels 10-in. up and down. Machine is fitted on wood post 6-in. square. Will bore holes as large as 2 1/2-in. in diameter in hardwood. Easily installed; all parts readily accessible.

Try one in your plant, backed by our special guarantee proposition.

**Machine complete with chuck to hold up to 1/2-in. shanks....\$125.00**  
**Foot Treadle extra..... 5.00**

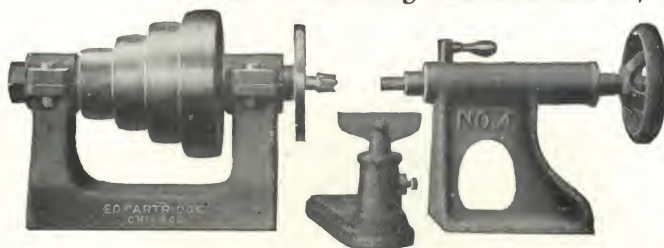


## Wood Turning Lathe Sets

Each set consists of one head stock, one tail stock, one rest socket, two tee rests, one spur and one common center, hand wheels and bolts for rest socket and tail stock.

No.	Swing	No. Speed on Cone	Width of Belt	Prices	
				Machine	Countershaft
1	6	2	1	\$16.50	\$ 8.50
2	8	2	1 1/4	20.25	10.50
3	11	3	1 1/2	32.50	15.25
4	13	4	1 1/2	51.75	18.75
18	18	4	2 1/2	100.00	25.00

## Wood Turning Lathe Sets, No. 4

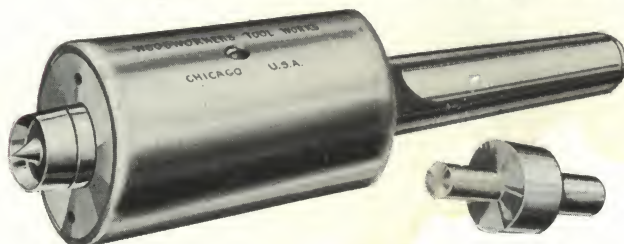


These are good small Lathes. The parts are accurately made and fitted. The bottoms are planed true with the centers. The pulleys are crowned and turned inside. Nos. 1 and 2 have cast iron bearings, and the centers are

ters are No. 1 Morse taper. Nos. 3 and 4 have babbitted bearings and the centers are No. 2 Morse taper.

No. 4 lathe can be fitted with a back face plate to turn large diameters outside the lathe bed.

## Improved Ball Bearing Lathe Center



Lathe Center No. 6, is guaranteed for one year from any mechanical defects.

The steel casing is turned from a solid bar, housing one radial thrust and one radial bearing.

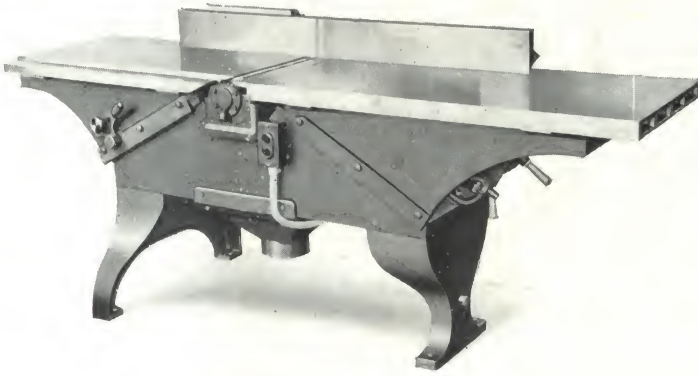
They carry the rolling tool steel center.

The center points are removable, allowing the use of two different styles of points furnished with each complete center.

No. 5 Center, large dia. 1 7/8". Price.....\$24.00  
No. 6 Center, large dia. 3". Price..... 34.00

When ordering, send sample of tapered shank and state diameter at revolving point.

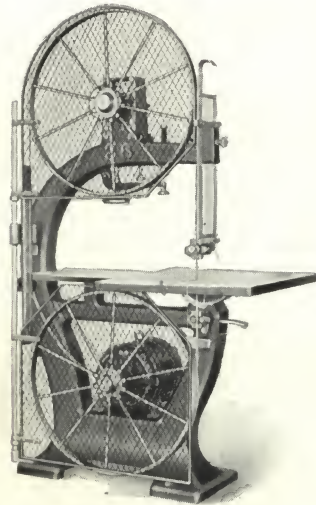




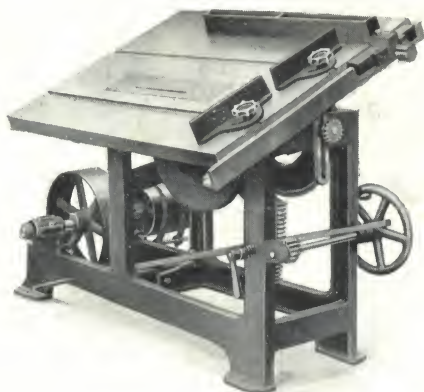
**Heavy Duty Jointer** which is built in both 12 and 16-inch sizes with motor built on the head or belt drive.



**Light Type Jointer** built in 8 and 12-inch sizes with motor built on the head or belt drive.



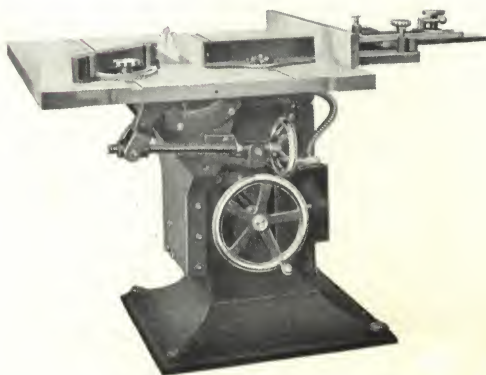
**Band Saw** built in 3 sizes, 27, 32, 36 inches. Enclosed guards can be furnished if desired.



**No. 3 Combination Saw** with Tilting Table and arranged for Belted Drive, as shown, or Belted Motor Drive.



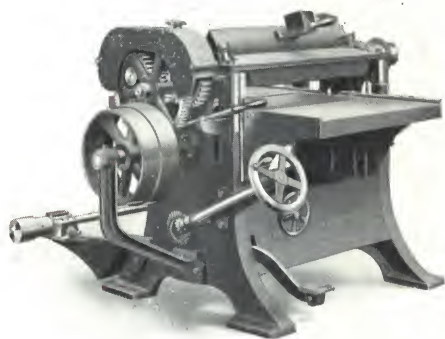
**No. 2 Combination Saw** with plain table and arranged for Belt Drive, as shown, or Belted Motor Drive.



**No. 1 Variety Saw Table** is built for Belt Drive with Countershaft or Direct Motor Drive with motor on the arbor.



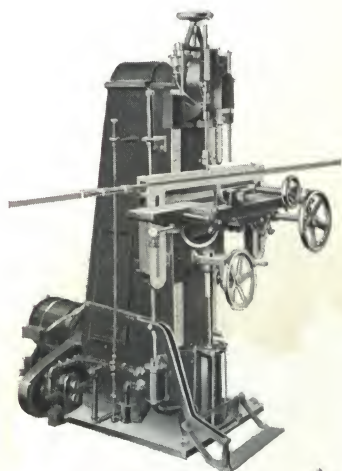
**Hollow Chisel Mortiser** built for Belt Drive or Direct Motor Drive with motor on the spindle.



24" Surfacers, built for heavy duty and production purposes. It also is built as a direct motor driven machine.



Swing Cut-off Saw arranged for belted motor drive and equipped with a detachable arbor yoke.

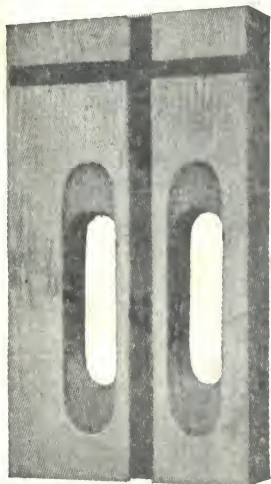


Chain Saw Mortiser with hydraulic feed for cutting mortises on a production basis.

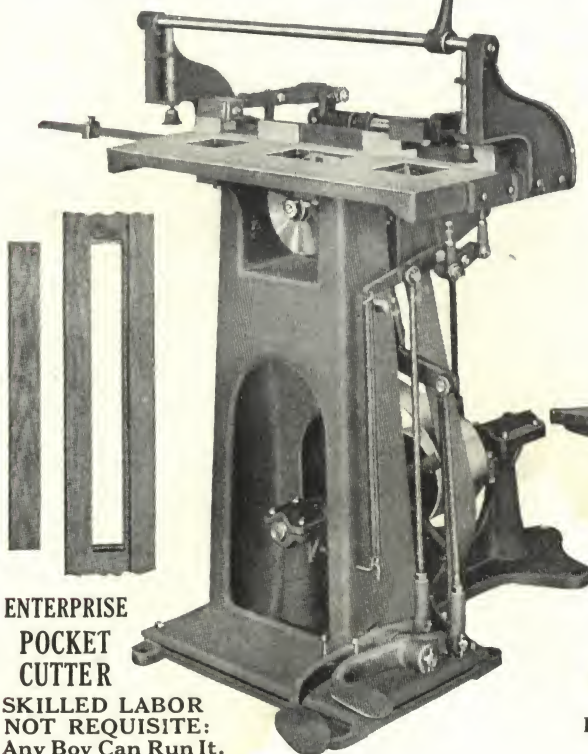
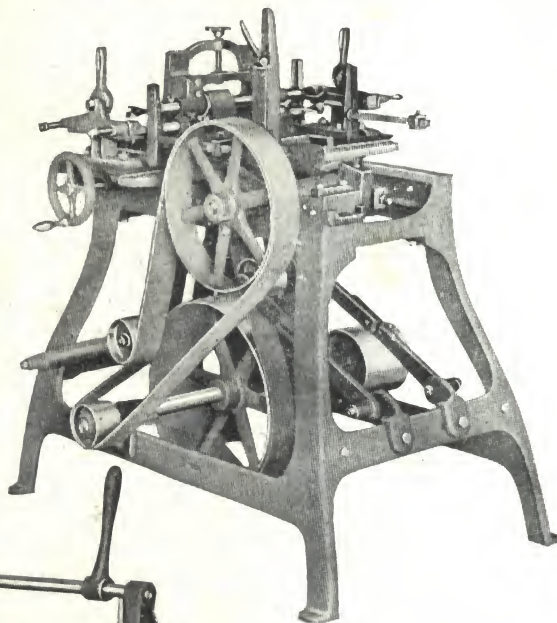


No. 10 Cut-off Saw. This machine is also built as a belted motor driven machine.



**Enterprise Pulley Mortiser**

Four Mortises Made With  
One Operation



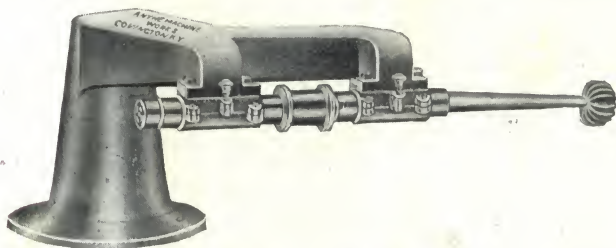
**ENTERPRISE  
POCKET  
CUTTER**

**SKILLED LABOR  
NOT REQUISITE:  
Any Boy Can Run It.**

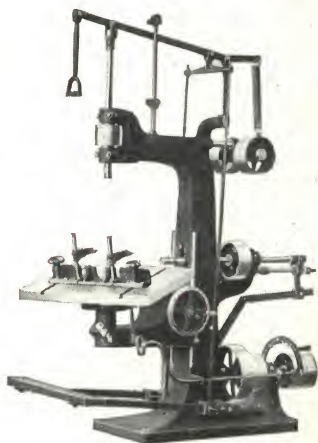


**BEACH SELF CONTAINED  
SCROLL SAW**

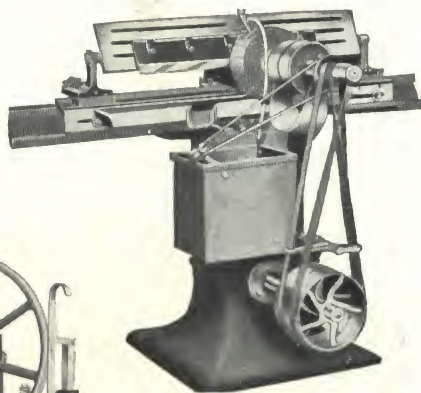
## The "Anthe" Spindle Carving Machine



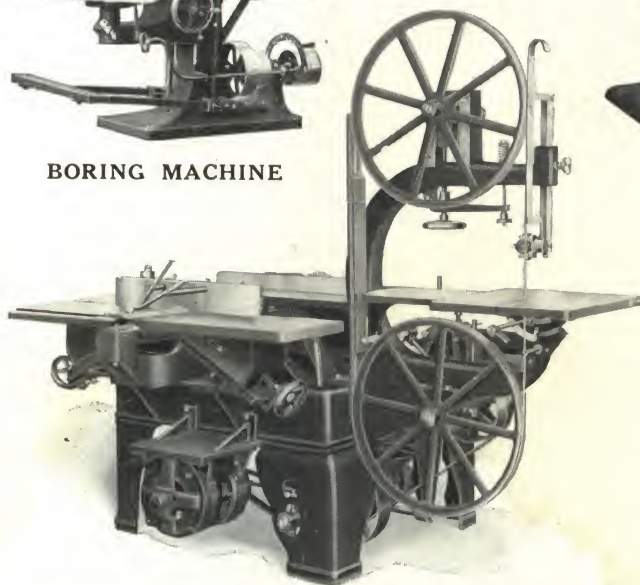
Heavy special steel spindle, long bearings, and the very best material money can procure.



**BORING MACHINE**

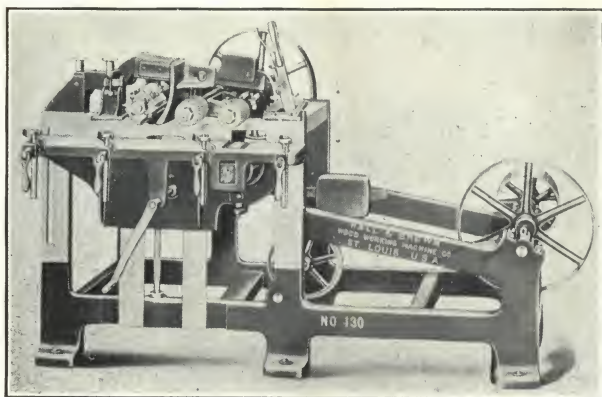


**AUTO KNIFE  
GRINDERS**

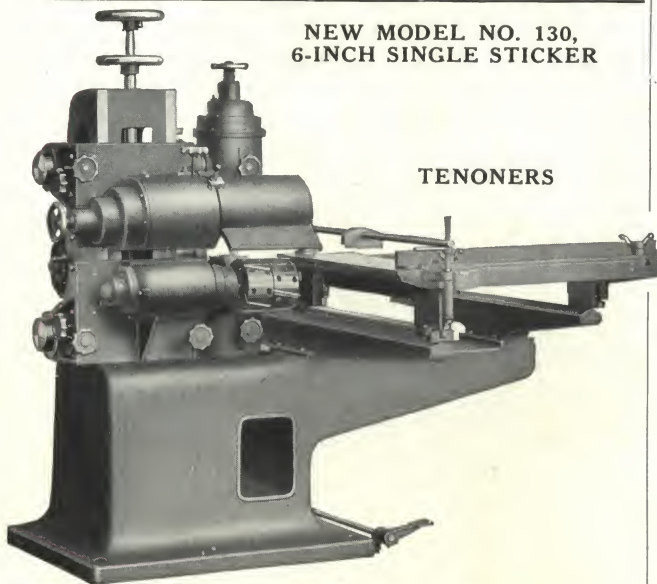


**UNIVERSAL WOODWORKER, FIVE MACHINES  
IN ONE**

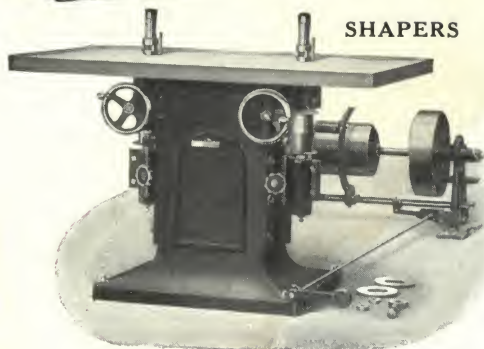




**NEW MODEL NO. 130,  
6-INCH SINGLE STICKER**



**TENONERS**



**SHAPERS**

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